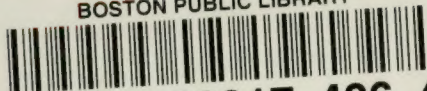


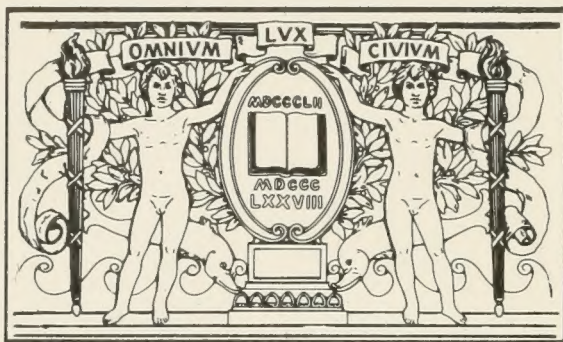
BOSTON PUBLIC LIBRARY



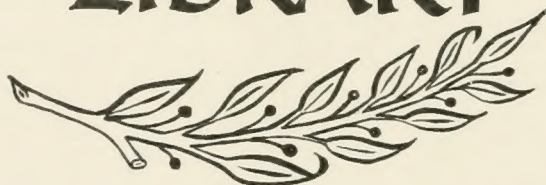
3 9999 06317 486 4

1.12





**BOSTON  
PUBLIC  
LIBRARY**











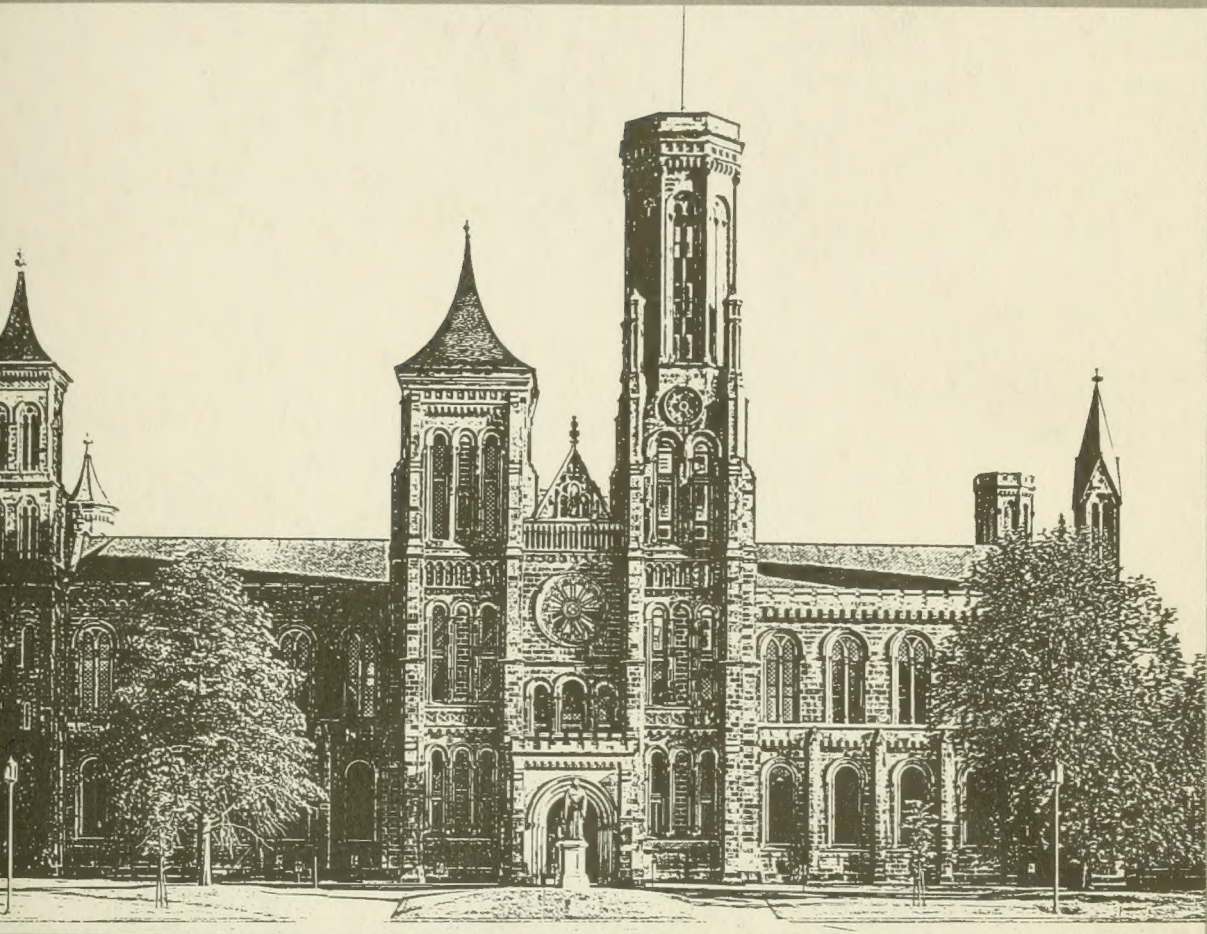












# SMITHSONIAN YEAR 1972

Boston Public Library  
Superintendent of Documents

FEB 24 1973

DEPOSITORY





# Smithsonian Year

## 1972

ANNUAL REPORT OF  
THE SMITHSONIAN INSTITUTION  
FOR THE YEAR ENDED 30 JUNE 1972



SMITHSONIAN INSTITUTION PRESS

City of Washington

1972

*Gu Doc  
Photo only*

SMITHSONIAN PUBLICATION 4768

Library of Congress Catalog Card Number 67-7980.

---

For sale by the Superintendent of Documents, U.S. Government Printing Office  
Washington, D.C., 20402 - Price \$2 (paper cover)  
Stock Number: 4700-00235



## The Smithsonian Institution

The Smithsonian Institution was created by act of Congress in 1846 in accordance with the terms of the will of James Smithson of England, who in 1826 bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." In receiving the property and accepting the trust, Congress determined that the federal government was without authority to administer the trust directly, and therefore, constituted an "establishment," whose statutory members are "the President, the Vice President, the Chief Justice, and the heads of the executive departments."

### THE ESTABLISHMENT

Richard M. Nixon, *President of the United States*

Spiro T. Agnew, *Vice President of the United States*

Warren E. Burger, *Chief Justice of the United States*

William P. Rogers, *Secretary of State*

George P. Shultz, *Secretary of the Treasury*

Melvin R. Laird, *Secretary of Defense*

Richard G. Kleindienst, *Attorney General*

Elmer T. Klassen, *Postmaster General*

Rogers C. B. Morton, *Secretary of Interior*

Earl L. Butz, *Secretary of Agriculture*

Peter G. Peterson, *Secretary of Commerce*

James D. Hodgson, *Secretary of Labor*

Elliot L. Richardson, *Secretary of Health, Education, and Welfare*

George W. Romney, *Secretary of Housing and Urban Development*

John A. Volpe, *Secretary of Transportation*

# Board of Regents and Secretary

30 June 1972

Presiding Officer ex officio

Richard M. Nixon, *President of the United States*, Chancellor

Regents of the Institution

Warren E. Burger, *Chief Justice of the United States*, Chancellor

Spiro T. Agnew, *Vice President of the United States*

Clinton P. Anderson, *Member of the Senate*

J. William Fulbright, *Member of the Senate*

Hugh Scott, *Member of the Senate*

Frank T. Bow, *Member of the House of Representatives*

George H. Mahon, *Member of the House of Representatives*

John J. Rooney, *Member of the House of Representatives*

John Paul Austin, *citizen of Georgia*

John Nicholas Brown, *citizen of Rhode Island*

William A. M. Burden, *citizen of New York*

Robert F. Goheen, *citizen of New Jersey*

Crawford H. Greenewalt, *citizen of Delaware*

Caryl P. Haskins, *citizen of Washington, D.C.*

A. Leon Higginbotham Jr., *citizen of Pennsylvania*

Thomas J. Watson, Jr., *citizen of Connecticut*

James E. Webb, *citizen of Washington, D.C.*

Executive Committee (Permanent Committee)

Warren E. Burger, *Chancellor (Board of Regents)*

Clinton P. Anderson

William A. M. Burden

Thomas J. Watson

Caryl P. Haskins

James E. Webb (*Chairman*)

S. Dillon Ripley

James Bradley\*

The Secretary

Under Secretary

Assistant Secretaries

David Challinor, *Assistant Secretary for Science*

Charles Blitzer, *Assistant Secretary for History and Art*

William W. Warner, *Assistant Secretary for Public Service*

T. Ames Wheeler

Treasurer

\*Retired effective 30 June 1972.



# Contents

	<i>Page</i>
The Smithsonian Institution . . . . .	iii
Board of Regents and Secretary . . . . .	iv
Statement by the Secretary . . . . .	1
Financial Report . . . . .	25
Science . . . . .	51
National Museum of Natural History . . . . .	52
National Air and Space Museum . . . . .	61
Smithsonian Astrophysical Observatory . . . . .	62
Smithsonian Tropical Research Institute . . . . .	67
Radiation Biology Laboratory . . . . .	71
National Zoological Park . . . . .	72
Office of Environmental Sciences . . . . .	76
Center for the Study of Man . . . . .	79
Smithsonian Science Information Exchange . . . . .	80
Fort Pierce Bureau . . . . .	80
History and Art . . . . .	82
The National Museum of History and Technology . . . . .	84
Archives of American Art . . . . .	92
Freer Gallery of Art . . . . .	93
National Collection of Fine Arts . . . . .	95
National Portrait Gallery . . . . .	99
Joseph H. Hirshhorn Museum and Sculpture Garden . . . . .	100
Cooper-Hewitt Museum of Decorative Arts and Design . . . . .	102
National Armed Forces Museum Advisory Board . . . . .	103
Joseph Henry Papers . . . . .	104
Office of American Studies . . . . .	105
Office of Academic Studies . . . . .	105
Smithsonian Institution Archives . . . . .	106
Office of Seminars . . . . .	107
Special Museum Programs . . . . .	109
Office of Smithsonian and National Museum Programs . . . . .	110
Office of Exhibits Programs . . . . .	111
Conservation-Analytical Laboratory . . . . .	112
Office of the Registrar . . . . .	112
Smithsonian Institution Libraries . . . . .	113
Public Service . . . . .	114
Smithsonian Associates . . . . .	115
Office of Public Affairs . . . . .	116
Office of International Activities . . . . .	117
Division of Performing Arts . . . . .	117
Belmont Conference Center . . . . .	118
Anacostia Neighborhood Museum . . . . .	119
<i>Smithsonian</i> (magazine) . . . . .	119
Smithsonian Institution Press . . . . .	120

	<i>Page</i>
Reading Is Fundamental .....	121
Office of Elementary and Secondary Education .....	121
Administrative Management .....	123
National Gallery of Art .....	131
John F. Kennedy Center for the Performing Arts .....	134
Woodrow Wilson International Center for Scholars .....	138
Appendixes	
1. Smithsonian Foreign Currency Program .....	139
2. Members of the Smithsonian Council .....	142
3. Smithsonian Associates Membership .....	144
4. Staff of the Smithsonian Institution .....	148
5. Publications of the Smithsonian Institution Press .....	177
6. Publications of the Smithsonian Institution Staff .....	184
7. Academic Appointments .....	243
8. Public Affairs .....	251
9. Smithsonian Exhibits .....	262
10. Progress on Building Construction, Restoration, and Renovation .....	265
11. Visitors to the Smithsonian Institution .....	266

## **Statement of the Secretary**

**S. DILLON RIPLEY**





## *The Pleasure of Your Company*

Of all places in the world, Washington seems to have the largest tourist attendance if the Smithsonian's annual visitor count is any indication. Last year the Smithsonian buildings, including the National Zoological Park in nearby Rock Creek, were visited by more than twenty million people. A year ago the Zoo made a survey showing that approximately 50 percent of its visitors are persons from a radius of more than 50 miles away from Washington, that is to say *not* from the immediate suburbs. Thus the National Zoo is indeed a nationally visited zoo. Extrapolating the figures for the total Smithsonian visitation on this basis would produce an extraordinary result. Something over five percent of the total population of the United States has visited the Mall buildings and the Zoo during the past year. This is the largest number of visitors that has been recorded for any institution. Other buildings in Washington also have a large number of recorded visitors, many of whom must be the same visitors of course. The United States Capitol has an annual estimate of seven to ten million people visiting the building but, as is also our case, there is no way of differentiating between members of the staff, Members of Congress, the press, people on business calls, and others. It does appear that on particularly heavy days the Capitol entertains as many as thirty thousand visitors on tours. In New York, the Metropolitan Museum has approximately 2.25 million visitors a year and the American Museum of Natural History, 3.2 million annually. In Disneyland, California, there were about 9.5 million visitors last year and the visitor count for Walt Disney World in Florida was approximately 7 million.

Compared to these figures the total 20 million for the Smithsonian makes it by all odds the largest single center for visitors in the Nation, if not in the world. The National Park Service estimates that all over the nation as many as 200 million people have visited public installations under their care in the last year. This includes, of course, everything from battlefields, national parks, the Statue of Liberty, The White House (1,391,300), to historic homes, forests, and open space camping sites. These figures seem to indicate that Americans are as peripatetic as ever and as restless as Mark Twain and other authors have described.

What special impact do the Smithsonian buildings have on twenty million visitors? This question represents a continuing enigma to us at the Institution, one that we shall probably never really solve. Certainly, as the years go on, my own impression is that the American tourists consider the Smithsonian's public exhibits as part of their birthright, and maintain a residual sense for many years afterwards of a kind of pilgrimage to this center in Washington, a visit to the place where the truths of their origins will be revealed. Of all the buildings visited on the Mall, the one with the largest tourist count is the National Museum of History and Technology, and as one might suspect, here is felt the pulse of American history. Here are the visible evidences of America, the desk on which Thomas Jefferson wrote the Declaration of Independence, the flag that flew over Fort McHenry and inspired, apocryphally or not, our Nation's anthem, the uniform of General George Washington, his field campaign tent, memorabilia of famous men and women and examples of our culture and crafts from earliest times. The National Museum of History and Technology is a veritable archive of objects. It makes patent American history and speaks of the struggles and triumphs of American men and women. Surely this will be one of the most important shrines for American visitors during the Bicentennial Year of 1976.

Another center for historical interest, which we hope to complete by 1976, will be the National Air and Space Museum Building. Time, strikes, weather, and material shortages notwithstanding, our target is to open this new museum during the Bicentennial year. The National Air and Space Museum will have within it not only the documents of the history of man's conquest of the air and space, the machines, the objects involved in the bewildering triumphs of air and space technology, but also archives and records of those who have made the discoveries and the flights possible. We shall also have a fascinating auditorium, a space which we have christened the "spacearium," in which it should be possible not only to achieve the impressions gained in a planetarium but also seemingly to project the visitor out into space looking back on Mother Earth.

This coming winter we shall be experimenting with a model of the spacearium in the form of a smaller-domed projection auditorium in the old Air and Space Building in the hope of refining our techniques and making the exhibit technologically perfect. It is estimated that the visitor count during the first year to the National Air and Space Museum will be in excess of six million, presumably taking care of the anticipated 30 million visitors on the Mall during the Bicentennial Year of 1976. The contemplation of such a vast aggregation of tourists is staggering almost beyond comprehension. In his 4th of July speech the President cited "Festival USA" as part of the Nation's plan for the Bicentennial and mentioned also the "Nation of Nation's" slogan which the National



Museum of History and Technology had adopted for its major exhibit during the Bicentennial Year.

The record of this country's performance in such areas as politics, economics, and science is clear, but the attitude of Americans towards the arts—ranging as it sometimes has, from apathy to antagonism—has left us with little understanding of their history. One of the purposes of the Smithsonian's program for the American Revolution Bicentennial Celebration is to develop a Bicentennial Survey of American Art. This will embrace the National Collection of Fine Arts' Bicentennial Inventory of American Painting, the National Portrait Gallery's catalog of portraits of the revolutionary era, the Archives of American Arts' Bibliography of American Art, and the Division of Performing Arts' Survey of American Folk Culture. Most of these were begun two years ago with the first Congressionally approved appropriation to the Smithsonian for the Bicentennial. In addition, the National Gallery has important plans for exhibitions. During those two years plans have been formulated for the various parts of the Survey; hundreds of local, state, and regional organizations and institutions have been invited to cooperate in it; computer programs and retrieval systems have been developed and forms have been prepared for the gathering of information. To date some 1,226 museums and historical societies all over the country and in Canada have undertaken to gather information for the National Collection of Fine Arts Inventory, which already lists more than 18,000 paintings. About 5,000 items have been entered in the National Portrait Gallery's Catalogue of American Revolutionary Portraits. This Survey is one that promises to produce one of the most enduring products for students and scholars of our Nation's cultural achievements.

In the realm of exhibits, the Smithsonian has developed a Bicentennial Exhibition Program, designed to produce special exhibits in all of our major museums, as well as traveling Bicentennial exhibits for use throughout the country. During this year some four million persons viewed our traveling exhibits throughout the United States and Canada. One can only surmise how many more will wish to see the Bicentennial displays planned especially for them. We also plan to have additional exhibits, catalogs, the possible acquisition of special objects and the production of traveling versions of these exhibits. The Anacostia Neighborhood Museum is planning to create a new center for the design and production of imaginative and inexpensive exhibits on themes of special interest to minority groups, to the disadvantaged, and to all those throughout the country who do not normally visit museums. This center will serve also as a training place for young people drawn from all parts of the country who wish to learn the special skills involved in communication through objects and exhibits. In addition we plan to contribute to

intergovernmental agencies, Bicentennial projects, such as the exhibit in the Great Hall of the Department of Commerce Building. Altogether the Smithsonian's contributions to the Bicentennial Year should be epoch making in the Mall area itself; and if, in addition we can create an outdoor museum in one of the neighboring park areas along the Potomac for the history of the Armed Forces revolutionary period, we will have played a still more significant role in the welcome to Washington for the thirty millions of visitors expected at that time.

If the fifty percent increase in visitors, expected by 1976, is to be accommodated without an increase in available parking facilities, the saturation point will have been exceeded. By then, the Air and Space Museum Building, the addition to the National Gallery of Art, and the Hirshhorn Museum and Sculpture Garden will have joined the other buildings on the Mall, and added over 50 percent to the present 760,514 square feet of public exhibit space, to make a total of 1,154,964 square feet. This tremendous increase in exhibition area, and one which will have unusual architectural distinction, will, we believe, accommodate a forecast attendance of thirty million persons a year. But there is no doubt that things will be crowded, and particularly in the heat of summer, with the rush from one activity to the other, the temper of our visitors may wear thin. Hence, it is even more important that the activities planned for 1976 be festive and that Washington, as a whole, prepare itself for the challenge of "Festival USA." The Smithsonian, with appropriate help from the National Park Service and kindred organizations, and with the blessing of Congress and of the administration, will do its part, and every member of our staff will be taxed to the limit. To this challenge, there are no alternatives: 1976 is a year of promise for all Americans and it is a year in which many foreigners will want to share. Restless as Americans are, they will come. Patient as they are they will withstand the tiredness, the aching feet, the shrill cries of little children who cannot be left behind. The year will come and go with a resounding crashing of many feet on the Mall, millions hungry for these sights will not be denied.

What impression will the visitors have in that year? What semblance of the past, what hope for the future will they take away when they leave the Nation's Capital? The Smithsonian is more than simply concerned with the past. Our objects are "documents," carefully conserved and lovingly curated, representing more than merely a panorama of past history. They indicate the scope of man's inventiveness, his ability to create, and the technical skill and craft innovation which have placed America in the forefront of the nations of the world.

In a recent commencement address Nathan Glazer, the sociologist, spoke of the question of productivity and the fact that in the present youth culture in the United States there seems to be a rejection of



ambition and competition. As he put it, the position of the United States in world trade and technology is dependent on its youth. It is dependent on a continuity of such skills and such creativeness. Without that our standing could be significantly diminished in time. He contemplated a possible future in which Japanese youth "take pride in turning out ever more efficient and complex transportation and electronic devices, while American youth take satisfaction in fashioning leather belts and making organic bread."

A recent article in *The New York Times* cited a foreign correspondent's impression of the difficulties of education in a country abroad. Describing the present trends in that country the writer noted the government's concern for educational techniques and training which have failed to preserve traditional labor in agriculture and crafts, noting that the youth, especially of more affluent families, desired to go to college today, whereas 30 years ago a high school diploma was considered a mark of prestige. The writer commented on the government's increasing concern over vanishing agricultural labor on farms and the distaste expressed by the young for craft or machine work in factories. As it happened the country was the Soviet Union although the resemblance to the United States seems startling.

Why is it that young people today find education itself a pleasurable occupation, to be prolonged as long as possible, in a kind of extended playpen, and why is it that no one really seems interested in getting down to a job?

These are some of the questions which continually bewilder all of us concerned with education. They are not necessarily questions confined to educators. It often seems to me that the Smithsonian should concern itself with these problems based on our reservoir of information about the history of the growth of American culture. If American culture is changing, then there should be some way of assessing and measuring this even within the records of the recent past. I have often stated that a museum should be like a kind of planetarium, almost like the spacearium which the National Air and Space Museum contemplates building. It should be possible to set in motion a chain of events within a museum which would lead up through an exposition of the past into the present and then, bearing these points of reference in mind, preparing a projection for the future. If we could think of a museum as a kind of "social spacearium" then it should be possible to determine why it is that at this present stage in American culture, there is such a sense of alienation from traditional values and such a sense of apathy about traditional skills and cultural refinements. From art to technology, there seems to be a peculiar lack of industry, creativeness, and desire to follow in any mould today.

In many ways art today is sick, suffering from a surfeit of invention,

which has produced a sense of negativism. Artists today dwell in a half world, bored on the one hand with derivative skills and the techniques of realism, on the other hand virtually barren of inspiration. The result is a kind of nihilism, a sense of frustration out of which a feeling of self destruction and sadism seems to emerge. At the Venice Biennale a group of revolutionary young artists voted to applaud the act of the mentally disturbed Hungarian engineer who defaced Michelangelo's *Pieta*, as a heroic act of anti art (= presumably art?). This sort of gesture is beyond Dada, beyond surrealism, perhaps part of an odyssey into a new psychic realm—the “freak-out.”

In technology the labor unions, on the one hand, and industrial planners, on the other, are concerned that the young of the most highly skilled, inventive, and technologically developed country in the world are no longer interested in the refinements and skills on which our society depends. Here again is a kind of nihilism which one must deplore, for it is so naive. If we are to succeed in making the envelope of earth viable for future generations, we must continue to develop the skills on which our very culture depends.

Only with greater skills and a greater understanding of the lessons of applied science can we achieve an ultimate adaptation between human life and the supporting forces of earth, which will allow human life to continue. This dilemma is heightened today by the tension between the universities, on the one hand, and the students and their parents, on the other. The universities have been plagued by negativism and self-doubt. The students, many of whom really are not qualified for university life in principle, are led astray by the play syndrome, or by feelings of frustration or rancor at the failure of their expectations. The parents are frustrated because of their own expectations for their children inherent in the American dream. And so all elements in the mixed salad that is American education today are at odds. The institutions, afflicted with self-doubt and a nagging loss of purpose, are about as popular to the taxpayer as other municipal or state supported institutions, such as sanitariums and prisons. We know we need them or something like them, but we hate to have to pay for them. In this atmosphere leadership is difficult if not impossible, and mere training and the transfer of information becomes the rule.

What is, of course, needed is some development of training institutes for the many youths who need such training in skills. But how to make that dignified? How to make it more glamorous? How to invest such potential career-training with an aura of excitement? Without it, the urgent needs of education will not be solved. One can only applaud U.S. Commissioner of Education, Sidney Marland's concept of “career education” at different levels from primary to continuing adult. What we need is a return to the concept of a tradition and pride in crafts and skills through



curriculum reform.

The problems of the Smithsonian for the next few years are going to evolve largely around "the pleasure of your company" and how best to let some of what we have to tell about America rub off on the increasing millions of visitors. It is all very well for us to spend time, money, and great intellectual effort planning and designing new buildings as part of the Smithsonian complex of public enterprises on the Mall, but it is going to be physically impossible to entertain the very crowds we welcome unless some accommodation can be reached among the city of Washington, the legislators who rule us, and the federal government. Signs and portents are all around. Cassandra-like voices have been calling for the development (via the Pennsylvania Avenue Commission of a number of years ago) of new centers for visitors, of outlying satellite parking, of bus services and other means of transporting people. It will be most difficult to handle the very masses of people whom the President wishes to welcome for "Festival USA" for 1976 even with the present schemes of busing and the development of the Metro. Visitor surveys seem to be largely unheeded. It is difficult to assess the eventual costs of building a transportation network that will get tourists to the central attractions of the Capital city. No one seems really to want to pay for it all, and yet so much of the economic life of Washington depends on its tourist traffic. If twenty million people a year are coming to the Smithsonian buildings today, how many more will have been here by 1976 to increase the glut and congestion?

Recently I had a letter from South Dakota.

Dear Mr. Ripley,

I bought a \$12 Smithsonian membership [I think he meant an Associate membership which is \$10] because I thought *it* would help when we visited. We probably will never know!

Yesterday we were able finally to get on to the street your front door is on—the heat was terrific—the people thicker than hair on a dog's back—and by the good Lord himself you could not find a place to park your car—Sooo - we decided, in a word, tohellwithit—we have had a lovely day here in Dayton at the Air Force Museum.

My 13 year old son and I also spent three days at the Museum of Science and Industry in Chicago. When we finish here we are going to St. Louis and see the Arch—so we will see our share—in spite of your lousy parking situation.

We honestly do suggest that better parking and more of it be provided for us country bumkins from the sticks and further—so somehow we can see what we keep hearing about when we come to town.

And no wonder. One Associate member who receives *Smithsonian* magazine wrote in to tell us that he lives in Arlington, Virginia, and that the only way that he sees the Smithsonian is through our magazine. Whenever he sees the buildings it is usually to drop off visitors to town, leave them at the front door, drive around, and pick them up two hours later. This means that many of the less persistent residents of Washington

city, itself, and the immediate suburbs simply have no time to get to the buildings.

It becomes not worth-while. It is too much of a struggle. We certainly cannot blame them. The tourists will come despite any amount of traffic jams and problems. It is really going to be difficult in the coming years for Washington to become so *relatively* unpopular that the tourist traffic will fall off. Rather, people remain persistent, they remain hopeful, and, one hopes, they remain enthusiastic.

Recently, when planning for the National Air and Space Museum (plans approved by the Congress now many years ago), voices were heard on Capitol Hill that we should not go ahead with the plans for the Air and Space Museum because of the present congestion of visitors. But if we are not to go ahead with plans for a new building already long approved, which will enhance the popular understanding of science and technology among the American people, then how are we to proceed? Should we simply shut up shop and go away? The Institution is already here, the plans for the new building are already in existence. Everything that we can do to mobilize public opinion and to engage the interests of the young in American history, the history of our technological achievements, and the hopes for the future, must somehow be done. If it is not to be done by the Smithsonian in Washington then how is it to be done? Some Members of Congress may find it more appealing to have the Air Force Museum in Dayton or a museum of science and industry in Chicago assume the task, but this is begging the question. The National Collections must be exhibited in Washington. The city itself continues to be an enormous tourist attraction for Americans from every part of the country. Surely the Congressmen themselves on reflection will realize that these are their own constituents and that there will be growing concern over the years if somehow these constituents are not shown the heritage of America and its hopes for the future. In any case, a traffic survey made for us around the site of the new Air and Space Museum showed that having the building there rather than a parking lot and cross streets as at present, will actually decrease traffic congestion at peak periods by cutting off diversionary cross traffic, improving the parking situation, and providing some five hundred new spaces for tourists in a basement parking garage.

And so we proceed with our plans, confident that over the years the city government, the Congress, and the Executive branch will somehow mobilize a coherent program to solve the parking situation and to handle the flow of visitors whom we all surely wish to see come to Washington. We will have to learn how to live with ourselves as well as visitors in some kind of harmony as far as transportation is concerned.

In a way, Washington symbolizes the kind of general transportation problems of all urban areas, and yet it is a specialized one in so far as



tourist traffic is concerned. Too much attention is being paid today to other areas, too little attention is being paid to inner city transportation problems. Concomitant with these transportation problems are the problems of the residents themselves. Somehow a new effort will have to be made to understand the interrelationships of people living in urban areas and people moving through and being part of these urban areas in transit. A whole aspect of human nature is involved. People do not like to be crowded beyond a certain point and the points vary, the degrees of toleration are endless. Anthropologists have mused on the fact that certain types of people accept life in aggregations more than others. The study of proxemics reveals that some people are more adapted to being closely crowded, almost as it were herded together, and that other kinds of people resent herding and wish to break out and be more solitary. And so it goes. People will continue to be motivated by different urges, will continue to differ in their reactions as well as in their appearance, and this will go on endlessly in spite of all attempts by planners, architects, engineers, and social philosophers to equate one person to another.

Our very diversity and our ethnic variety are strong assets only now beginning to be realized. It is one more reason why the Smithsonian hopes over the next few years to think more deeply about the problems of representing man in his environment, perhaps to be encompassed in a Museum of Man?

The problems of man and the representation and discussion of man in his environment are not simply the prerogatives of anthropologists. The sadness of museums of anthropology is that for most of the practitioners of ethnology these museums are merely legacies of extinction. Museums of anthropology in themselves have only existed for the past hundred years since the collections of the explorers began to be displayed. The Musée de l'Homme in Paris, perhaps the greatest of the existing museums of anthropology, is a place where one can find preserved exquisite records of extinct cultures, collections brought back by explorers themselves long dead. On the other hand, certain of the newer museums such as the National Museum of Anthropology in Mexico City have done an excellent job in exhibiting the continuity of culture. More recently we have "urgent anthropology" as it is sometimes called, the last residues of that program of the explorers, initiated in this country by Major John Wesley Powell (who founded our own Bureau of American Ethnology in the Smithsonian a hundred years ago), to record the languages and artifacts of the American Indian before they became extinct. I have been told that there are still more than two dozen Indian dialects or subdialects which have eluded Powell and his followers and have not yet been fully described. In some cases they are spoken by only a handful of persons over 70 years of age, and, thus, as dialects or languages, will go to the grave with them. If

this is so we cannot avoid an ultimate responsibility as curators, not merely in the failure to record an aspect of the creativity of the human spirit, but also that we ourselves have created the very extinctions which we now mourn.

All over the world today, especially the tropical world, a sadness descends upon us, as we think of the ease with which cultures vanish before the onslaught of ourselves and our material artifacts. Tribes with whom I lived in New Guinea a dozen years ago have now already in the intervening time forgotten how to fashion stone axes and know only the steel ones. In fifty years I suppose they will have forgotten how to use axes at all and be dependent on power saws and gasoline-powered brush cutters. Thus these legacies of vanishing ways of life, collected by ethnologists and anthropologists are really the sole meaning of anthropological museums. They are simply evidences of the evolution of groups and types of the varied material cultures of mankind.

A modern Museum of Man, however, should be far more than a museum of collections and a museum of extinctions. A Museum of Man should be a museum of social and technological history and as such a matter of great moment and concern to us all whether we are American Indians, Caucasians, or members of any other ethnic subdivision. All citizens of the United States should be concerned, for within all of us there continues to reside heritable characters which, transmuted by whatever external pressures about us still persist, tend to evade change, and still produce our bewildering diversities. Anthropology as such does not seem any more a subject. It has become to many minority peoples a figment of the imagination of peoples of European stock.

Nowhere could there be potentially better proof of the ability, phoenix-like, of a museum to show its true colors, not to be dead, but to be reborn, than in the case of anthropology. Ethnologists should cease to exist solely in the realms of connoisseurship and bring their functions and their collections up to date. They should do this by studying the peoples as they are today, how they survive, how their culture has molded them to adapt to this onrushing century and its international hucksterism. For they will not die out, all these different people, all these ethnic subcultures, these minorities of every kind. "Their cultural structure may become dilapidated" as Kubler describes the descendants of the Maya, but they will survive, and in so doing surely represent a cultural evolutionary response to hard knocks, which students of the welfare state might do well to recall. I have always felt that there were quantities of relevant data in the reactions of tribal people to the inroads of civilization. Psychologists and sociologists would do well to remember the vast resources that ethnographers and their museums of anthropology have at their disposal.

So it seems to me that the subject of a Museum of Man is a vital



forward looking one, which could help to place the capstone on the realm of public instruction which we can offer along the Mall. Somehow or other the Smithsonian should play a role in interpreting man to himself through all his endless varieties and diversity.

The past year has seen the 125th anniversary of the legislation that established the Smithsonian Institution. In September 1971 we celebrated this milestone. A letter from President Nixon described the contributions of the Smithsonian and paid tribute to the English scientist "whose generosity and vision first made its founding possible, and to the dedicated generations of scientists and scholars who carried forward its mission. This anniversary is a brilliant reminder of the public benefits that can result from enlightened private endowment."

The 125th anniversary was celebrated with a delightful program of lectures and capped by a dinner at which birthday cakes in blue and gold colors were provided and messages from around the world were read. One of the interested participants in the 125th anniversary was former Secretary C. G. Abbot of the Smithsonian, who in May, 1972, celebrated his 100th birthday. Eighty percent of the history of the Smithsonian has been encompassed in his lifetime and one half of the history of our Republic. Dr. Abbot's 100th birthday, coinciding so closely with the 125th anniversary of the Smithsonian itself, reminded us once again of the transitory nature of recent history, the fact that in a flash, as it were—the lifetime of one man—fully half of the lifetime of our Nation has occurred. All of us concerned rejoiced both in the anniversary of the Institution and in the birthday anniversary of the fifth Secretary. We were delighted that all of his successors were able to be present as well, for it is in such a sense of continuity that we can overcome the feeling of speed and haste which somehow so easily overcome us today.

It is significant that the largest of our two new enterprises, the Hirshhorn gallery, on the one hand, and the National Air and Space Museum, on the other, should be concerned with objects and ideas and ways of thought which did not exist when former Secretary Abbot was already an adult. The Smithsonian itself as it now exists could hardly have been imagined at the turn of the century when Abbot had been working for this Institution for four years. The very idea of air and space technology was a dream, encompassed then only in the minds of visionaries. The emphasis of the museum community itself, the concern with social problems, and the attempts to understand our natural environment, are programs that similarly did not then exist. At the turn of the century, Darwin was barely accepted and his theories of evolution were still revolutionary. Now we realize that an understanding of the principles of Darwinian evolution is vital to our understanding of continued life on earth.

Having a 125th anniversary reminds us of the continuing efforts that must be made to develop the most effective ways of administering so extraordinary an institution, preserving the richness of its variety and the liveliness of its parts, while retaining a general identity and a sense of purpose and direction. A new element in the administration of the Institution has been introduced this year with the retirement of James Bradley as Under Secretary and his replacement by Mr. Robert A. Brooks as The Assistant Secretary. Mr. Bradley, a veteran of 37 years of government service, came to the Smithsonian in 1959 as Assistant to the Secretary and was named Assistant Secretary in 1960 and Under Secretary in 1971. He had served as the principal technical and administrative assistant to the Assistant Secretary in the Department of the Interior since 1950. Earlier, from 1945 to 1950, he served as a budgetary and legislative analyst in the Bureau of the Budget, Executive Office of the President. His ability to handle the various threads of administration and to support the Secretary's Office in all its aspects has been outstanding and one of my personal pleasures is the fact that he will continue to work for the Institution on a part-time basis in the future. Meanwhile, we welcome Mr. Brooks in his capacity as a replacement to Mr. Bradley and feel convinced that his unique background of training in classical scholarship and administrative achievement in the Department of Defense and in private industry in management will succeed in serving the Institution's purposes most successfully.

At the beginning of the fiscal year David Challinor was appointed Assistant Secretary for Science. Mr. Challinor came to the Smithsonian in 1966 with a background in forest ecology and museum administration. Subsequently he performed an excellent job as Director of the Office of International Activities and had been Acting Assistant Secretary for Science since the departure of Dr. Sidney Galler.

Other activities in some of the outlying parts of the Institution have been of great interest in 1972. During this year recognition of the pioneer work of the team of Messrs. E. A. Link and J. Seward Johnson in developing the unique submersible vessel, the *Johnson-Sea-Link* and creating a marine center about five miles north of Fort Pierce, Florida, on the inland waterway, resulted in the creation of the Fort Pierce Bureau. The Bureau will be a center for research and development in the Smithsonian's continuing work in the sea. The five-man submersible *Johnson-Sea-Link* is a fascinating vessel in which I have had the good fortune to make a dive. It attains high visibility through a transparent acrylic forward compartment as well as a diver lockout capability from the aluminum afterchamber. It is possible to descend as deep as 1,000 feet or more for study of the structure and biology of the sea floor. The research vessel *Johnson*, now being completed, will service and act as a mother ship



to the submarine. This bureau is under the direction of Dr. I. E. Wallen, who pioneered the marine sorting center facilities at the Smithsonian itself, and has been so active in our oceanographic program.

Activities at the Chesapeake Bay Center for Environmental Studies have resulted in the Smithsonian Institution joining the Chesapeake Bay Research Consortium, Inc., for long term research of the area. This Consortium includes support from the National Science Foundation for scientists from the Smithsonian, Johns Hopkins, The University of Maryland and the Virginia Institute of Marine Sciences. In addition, close cooperation with the U.S. Geological Survey will be maintained. The Chesapeake Bay Center for Environmental Studies continues to develop successfully through the mixture of private land acquisition and government agency support. During the past year, the Stevens farm of 150 acres was added to the acreage of the Center, which now consists of a total of 2,261.26 acres, acquisition of which resulted from donations from private individuals and foundations. These included two major gifts in the past year: \$200,000 from the Richard K. Mellon Foundation and \$120,000 from the Scaife Family Charitable Trusts. In addition a donation of one half of Jefferson Island gives the Smithsonian full title to two of the three islands in the Poplar Island group. This donation adds to the debt of gratitude which the Smithsonian owes to Dr. William L. Elkins of Philadelphia, whose generosity has been notable in the past.

In October the Smithsonian Institution joined with the University of Tel Aviv in the dedication of a new sixty inch telescope at Mitzpeh Ramon. This is the largest telescope in Israel and further strengthens the SAO's connections in astronomy abroad.

An additional bureau of the Smithsonian is the Cooper-Hewitt Museum in New York, which will become the eventual National Museum of Design. During the past year strong support has been given to the development of this museum in the Carnegie Mansion, a National Historic Landmark, through the gift of that mansion to the Smithsonian from the Carnegie Corporation, as well as an important contribution of \$500,000 towards the renovation of the house by the Andrew F. Mellon Foundation. Further contributions have been notable including the gift of \$100,000 by Mrs. Enid Haupt towards the conversion of one of the period rooms of the Carnegie Mansion, the beautiful old conservatory. It is planned that partial reconstruction of the Carnegie house will begin in the coming year.

In Washington, a striking development of the past year has been the final opening of the Renwick Gallery on the corner of Pennsylvania Avenue and 17th Street. As readers of past annual reports will recall, the Renwick Gallery was the original W. W. Corcoran Gallery of Art, designed by our own architect of the Smithsonian Building, James Renwick of church and cathedral fame. Rechristened the Renwick Gallery, the

building for many years had been the home of the Court of Claims, and in more recent times had lain uninhabited when the Court moved out to its new home on Jackson Place. The Renwick Gallery is next to the Blair House and across from the Executive Office Building and the White House. It is one of the city's loveliest and most historic buildings. Constructed just before the Civil War, it was the first building in this country designed specifically as a gallery for art, and finally given to the Smithsonian through the intervention of President Lyndon B. Johnson. When the building opened in January 1972, visitors could view the enormous north gallery on the second floor carefully restored to convey the impression of its appearance in its opening days in the 1870s. We are most grateful to the Corcoran Gallery of Art for the loan to the Smithsonian of a number of the paintings which appeared in this original gallery. The smaller octagonal room on the south side of the building has been carefully restored as a result of the generosity of the Morris and Gwendolyn Cafritz Foundation. In addition contemporary furniture, industrial design and James Renwick's own historical architectural achievements, the Index of American Design, and Frederick Carder's glass craftsmanship were all parts of the current, contemporary exhibits for the opening. The building will serve continually as a showcase for American design, crafts, and the decorative arts, as well as serving as host for important cultural events from time to time.

Another important milestone for Smithsonian installations in the Capital has been the preliminary approval of the master plan for the National Zoological Park, coupled with the arrival in this country and the donation to the National Zoo of the two giant pandas from the People's Republic of China. Mrs. Nixon presented the pandas to the Zoo in a ceremony on April 20th. Installed in the former Delicate Hoofstock Building, which is to be extensively renovated for these purposes, the pandas already have attracted an attendance fifty percent higher for the Zoo than in comparable periods of previous years. Efforts are being made to have the pandas fed at times of the day that will give visitors maximum viewing possibilities. We are already learning far more about giant pandas than most of the previous records of their care in captivity had prepared us for. Hsing Hsing and Ling Ling were reported to be about the same age, approximately 18 months old, when they arrived in this country in mid-April, and are notable for the fact that they are very different in weight. The female, Ling Ling, weighed 136 pounds on arrival, but had been in captivity since June of 1971. The smaller male weighed only 74 pounds on arrival, and may be slightly younger, but has been in captivity only since December 1971. It is thought by the Chinese keepers who accompanied the pandas to this country, that these animals grow more rapidly and increase their weight at a faster rate in captivity than they do in the wild state.



Somewhat nocturnal or at least crepuscular, the two animals have been adjusting well to their new home. They now sleep a bit less in the daytime than they did at the beginning of their stay, spend more time at play and in curious inspection of the visitors. They are fed a gruel of boiled rice and powdered milk along with fresh fruits and vegetables and freshly cut bamboo, and enjoy eating plants of bamboo planted in large tubs in their air conditioned enclosures. Although separated for the time being, it is planned eventually to bring them together in a common garden area to the south of the house in which they are confined. Under the imaginative guidance of Lester Collins, the landscape architect associated with our architects for the master plan, Faulkner, Fryer and Vanderpool, we hope to produce a panda haven in the form of a garden of bamboo as part of their enclosure.

It would be inappropriate today to receive such extraordinarily rare and valuable animals as giant pandas without making every effort to insure that they eventually should mate and reproduce. Pandas have been reared in captivity in the Peking Zoo, and it is the hope of the National Zoological Park, as it would be of any responsible zoo today, that the stewardship of these animals will include sensible and pragmatic efforts to have them breed. More and more, the major zoos of the world today are becoming bound together in a common concern and new fraternity as stocks of endangered species of animals continue to decline. One of the ambitions of the National Zoological Park is to create its own breeding area somewhere outside of Washington, so that certain stocks of rare species may be entrusted to the Zoo for safe-keeping and breeding in captivity. With the constant destruction of habitat, more and more species of animals will tend to become rare, vulnerable, and endangered. Many of these species will not be susceptible to captive rearing, but on the other hand, many of the larger animals, mammals, and birds particularly can be reared in captivity. Through international cooperative efforts, breeding stocks of such animals may be maintained for the day, some time in the future, when international public sentiment will have evolved sufficiently to restore some balance between human habitation and animal occupation of former range. As nation after nation becomes more sophisticated and understanding of the interplay between man and his animal relatives and neighbors increases, there is hope that natural areas may be preserved and kept around the world to serve as resources for the future. In such areas, many of the presently endangered species can be reintroduced successfully in time. The example of the San Diego Zoological Society, in creating their big natural park for breeding stocks of certain animals such as the white or wide-lipped rhinoceros of Africa, is inspiring.

It is incumbent upon the National Zoological Park to join this movement and to develop its own breeding area outside of the city. Such a

breeding area can serve as a satellite zoo, in effect combining both visitation possibilities for tourists and regional visitors, as well as secure breeding sanctuaries. The original example of the Whipsnade division of the London Zoological Society at Regents Park and the additional work being done by American zoos are all part and parcel of our hopes and ambitions for the National Zoo of the future.

On 17 May 1972, the Institution opened a major exhibit on drugs. Over two years in preparation, the purpose of the exhibit was to see how the Smithsonian, looking at the historical roots and evolution of the use of hallucinogens, could develop an exhibit that would educate the public in understanding drugs in our culture. Since the earliest times, drugs have played a significant role in religion and, later on, in medicine. Today without the constant refinement and use of drugs, medical practice would be at a standstill. In the conviction that our culture has evolved in close company with the rational and disciplined use of drugs, first in religion among the priestly castes and secondly among alchemists and doctors, we felt that it would be possible to arrange an exhibit which would rationalize in people's minds the traditional uses of these extraordinary substances. The exhibit has been supported with help from several foundations and drug companies and has pointed towards a new dimension in our ability to tell a story through an exhibition. The use of "talking heads," as developed by our Department of Exhibits has been noteworthy. The text material for the exhibit, prepared with the aid of the National Institute of Mental Health, the President's Committee on Drug Abuse, and a number of national and international authorities, has given us, I hope, the source material for a book which can be used as a textbook on the current status and knowledge about the use of drugs both beneficially and harmfully in our lives.

It is hoped that the exhibit will travel and will be widely viewed around the country. Shortly after the opening of the exhibit the Institution was honored by being given the Pacesetter Award from the National Coordinating Council on Drug Education, in recognition of our innovative educational exhibit. It is our hope that this exhibit will contribute to developing a rational approach towards the understanding and prevention of drug abuse.

In connection with our museum programs, we have been happy to obtain the addition of Mr. Paul N. Perrot to our staff. Mr. Perrot has been for twelve years Director of the Corning Museum of Glass in Corning, New York. He will assume office on 1 August 1972 as the Assistant Secretary for Museum Programs of the Institution, succeeding Mr. Frank A. Taylor who had been our pioneer head as Director General of Museum Programs. Like Mr. Taylor, Mr. Perrot has had long experience with museums in this country, as well as contacts abroad, and should be a most valuable



associate in connection with the Institution's National Museum Act, our Exhibits Program for museums both here and abroad, our libraries, our Conservation-Analytic Laboratory, and for museum affairs in general. It has been unexpectedly sad that he comes to us just after the tragedy of Hurricane "Agnes" had destroyed so much of the important collection and library of the Corning Museum of Glass, and we greet him with mixed emotions of happiness at his arrival and commiseration with him, his colleagues and associates at Corning, New York.

Of outstanding importance in this year has been the official commitment by Mr. Hirshhorn of an additional gift of 326 paintings and sculptures valued at more than \$7 million for the Hirshhorn Museum and Sculpture Garden. The paintings and sculptures involved are of the finest quality and include an important portrait by John Singer Sargent of 1884, a vitally important painting by Piet Mondrian of 1935, a Picasso sculpture of 1950, and an additional important David Smith, to round out the large Smith group in the Collection. The Board of Trustees of the Hirshhorn Museum have held three meetings, in Washington, New York, and Greenwich, and noted with approval the planning for the catalog of the inaugural exhibition which will be published by Harry N. Abrams, Incorporated. Mr. Lerner, Director of the Hirshhorn Museum, has announced that Douglas MacAgy, former Director of National Exhibitions, National Endowment for the Arts, has been named Curator for the Opening Show. The public opening of the Hirshhorn Museum and Sculpture Garden is scheduled for late autumn, 1973. At that time the collection of sculpture, complemented by a strong selection of modern American paintings and significant European works, will add greatly to the range and depth of artistic achievement on public view under the aegis of the Smithsonian Institution.

Progress continues to be the watchword for the Anacostia Neighborhood Museum, which has been extremely active during 1972. The Museum has expanded its effort to involve more people in the community in every aspect of the museum experience, and plans this coming year to establish an exhibits, design, and production laboratory, which will offer training in all phases of exhibition work. A small building has been planned for this laboratory and an important proposal has been submitted to a private foundation for funding.

In the National Museum of History and Technology a major opening of the past year has been that of a 19th-century Post Office Country Store. The U.S. Postal Service cooperated in the development of this exhibit and has provided a staff of three clerks to handle philatelic sales and regular mail for visitors to the Museum on a daily basis. The furnishings and objects in this store, a former Headsville, West Virginia, Post Office, originally constructed in the early 1860s, recreate the 1890-1910 period.

It is a living historical exhibit, dramatizing the importance of postal communications and the role of the post office as a social institution in the American community. A special postmark incorporates a pictorial representation of the Headsville Post Office and has been applied to all the mail deposited at our new "Smithsonian Station."

The Division of Postal History at the Museum has been fortunate this year in acquiring an outstanding envelope carried by the pony express in 1861 and a pair of rare stamps issued for mail carried by the balloon, *Buffalo*, in 1877.

Many additional acquisitions in photographs, daguerrotypes and associated items have also been received by the Division of Photographic History. This spring a Hall of News Reporting is being opened, made possible by generous donations from Time-Life, Inc., and *The Salt Lake Herald Tribune* among others. This summer has also included the re-opening of the Hall of Graphic Arts and the Hall of Numismatics. These halls have been redesigned since the unfortunate fire in the Museum of History and Technology a little over a year ago.

The Friends of Music at the Smithsonian had a memorable program in April 1972, including an entire festival weekend under the direction of Mrs. Constance Loudon Mellen as Chairman of the Friends, and of our Concert Director, James Weaver. Fifty guests from many parts of the country attended and were taken on tours of the Division of Music's handsomely installed exhibits and study collections, and in addition given dinners and receptions provided by local resident Friends of Music, culminating in a superb performance of Rameau, Couperin, Bach, and Handel in the Hall of Musical Instruments. The weekend was a delight, and grateful thanks are indeed owed to the organization of Friends of Music at the Smithsonian.

Plans have been inaugurated for the opening of a new gallery on the American Merchant Marine. A brochure has been published outlining the projected hall's theme which will expand the present collection beyond the limits of ships and types of ship models. Under the direction of Dr. Melvin H. Jackson, Curator of the Maritime Collections, it is hoped to convey a greater scope to the exhibits which will capture some of the glamor of the seatrader's life and the romance of ocean commerce. The scheme is an ambitious one and holds great promise to enliven and broaden the appeal of exhibits in the history of technology. An effort is being made to secure private support for the installation of the new hall.

Behind all this, performing less spectacular but nonetheless vital jobs, are the many administrative and support activities which enable the people engaged in the more glamorous history, art, science, and scholarly pursuits of the Smithsonian to carry on their work.

During the past year the Woodrow Wilson Center for International



Studies has been extremely busy and active. A number of important seminars have been held including informal visits to the Smithsonian Building by Prime Minister Willy Brandt of West Germany and Prime Minister Indira Gandhi of India. In addition the Club of Rome, in conjunction with the Massachusetts Institute of Technology, Woodrow Wilson Center, and the Smithsonian, held a one-day seminar on the subject of the *Limits of Growth*, the stimulating book developed as a result of studies by computer scientists and economists at M.I.T. This seminar attracted considerable attention, although the subject matter has come under spirited debate and the question of the validity of the projections will continue to be argued for a number of years. An airing of such a subject at this time, however, can always be assumed to be of the greatest value.

Additionally, in December 1971, the Institution played host for several days to the Group of Ten Finance Ministers at the request of then Secretary of the Treasury, John B. Connally. This momentous meeting, the first of the Finance Ministers to be held in Washington, was a landmark meeting for the Smithsonian itself, and we hope that the benign influence of the Castle Building was useful in promoting a community of financial interests among the nations concerned. Even though the dollar proceeded to float thereafter to the dismay of a good many of us, the merits of the case were well thrashed out and the immediate results seem to have been propitious.

In February 1972, as a result of the offer of air transportation by Mr. Watson, four of the Regents and their wives, accompanied by Smithsonian officials made a flying weekend visit to the Smithsonian Tropical Research Institute in the Panama Canal Zone and the Republic of Panama. The trip was an enormous success and a veritable eye-opener for the Regents involved, Senator Fulbright, Congressman Bow, Mr. Watson and Dr. Greenewalt; all of them found the occasion a memorable one, especially in understanding the complex ecological studies being undertaken in the tropics. During the visit the Regents had an opportunity of seeing the headquarters of STRI at Ancon in the Canal Zone in a building made available to the Smithsonian by the Canal Zone government next to the Gorgas Memorial Hospital. In addition they were able to see the Naos Island laboratories on the Pacific side of the canal and the work being done there on the biology of intertidal animals, marine environmental monitoring, and such fascinating subjects as the competition of coral species, and the reaction of unsuspecting Atlantic fish species to the poisonous Pacific sea snakes, a subject of great interest in connection with their possible introduction to the Caribbean Sea via a sea-level canal. The party also had an opportunity to visit the Galeta Island marine station on the Caribbean side of the canal, where studies are being undertaken on the

long term consequences of oil spills, as well as a wide variety of basic research.

A visit to Barro Colorado Island in freshwater Gatun Lake was a high point of our stay, for this island, formed when the Chagres River was dammed for the canal in 1914, has been held intact as a laboratory reserve since the 1920s. Its nearly 4,000 acres under the quarter-century administration of the Smithsonian serve as one of the most valuable tropical research laboratories in the world. Research records have been maintained of the flora and the fauna of the island since it was first set aside as a research center, and records of such continuous duration are rare indeed for tropical areas of the world. The reception that the Regents and their party received from the officials of the Republic of Panama as well as the Canal Zone was outstanding, and it was a joy to all of us to meet with so much hospitality as well as comprehension of the Institution's programs by the local residents and officials. It is hoped in the future to plan additional field trips for members of the Board of Regents as well as members of the National Associates Board. The success of this first trip was so marked that it seems important to give Board members additional opportunities for such personal experiences.

Three meetings of the Board of Regents were held during the past year. The autumn meeting was convened on 27 September 1971 in the Director's Conference Room of the National Museum of History and Technology. The principal discussion centered around the 1976 commemoration of the Bicentennial of the American Revolution which, as I have said, offers the Smithsonian Institution a rare opportunity to help to delineate our National achievements. Presentation of the proposed Smithsonian program was made by a number of bureau directors: Michael Collins for the National Air and Space Museum, Daniel J. Boorstin for the National Museum of History and Technology, John H. Magruder for the National Armed Forces Museum Advisory Board, and Theodore H. Reed for the National Zoological Park. Others presented a brief report on the proposed "Year of the Centennial" exhibit in the Arts and Industries Building, and the Festival of American Folklife.

The winter meeting was held at Hillwood, the estate of Mrs. Marjorie Merriweather Post, on 27 January 1972. The appointment of Thomas J. Watson, Jr., as a member of the Executive Committee (Permanent Committee) was confirmed by the Board of Regents. Senator Clinton P. Anderson resigned from the Executive Committee and the Board expressed its highest regard for his effectiveness in the deliberations of that Committee for the last eight years.

Following the meeting, the members of the Board of Regents attended the opening of the Smithsonian's Renwick Gallery, located at 17th and Pennsylvania Avenue.



The spring meeting of the Board was held in the Regents' Room of the Smithsonian Institution Building on 10 May 1972. Mr. James E. Webb was named Chairman of the Executive Committee of the Board of Regents, and Dr. William A. M. Burden was appointed a member of the Executive Committee.

The Board of Regents approved the adoption of new principles designed to make possible improved performance in the management of its endowment funds. These principles include the establishment of maximum total return as the investment objective for the funds without assuming an inappropriate degree of risk, and the determination of amounts to be distributed from endowment funds each year as a prudent portion of the average total return expected on these funds over an extended period.

On 11 May 1972, the President signed into law the appointments of three new citizen Regents. The appointments of John Paul Austin, A. Leon Higginbotham, Jr., and Robert F. Goheen, are for the statutory term of six years.

The Regents received a number of status reports including construction progress on the Hirshhorn Museum and Sculpture Garden, which has been delayed by difficulties in the construction itself, as well as industry-wide strikes and slowdowns.

The design concept of the National Air and Space Museum was approved by the Commission of Fine Arts. The House of Representatives included in the appropriation bill for the fiscal year 1973 an appropriation of \$13 million and express contract authority for an additional \$27 million for the construction of this project.

The National Armed Forces Museum Advisory Board was the subject of legislation introduced during the year to establish a Bicentennial Outdoor Museum, to designate the authorized study center as the Dwight D. Eisenhower Institute for Historical Research, and to authorize the transfer of federal lands at Fort Foote, Maryland, to the administrative jurisdiction of the Smithsonian. Negotiations with the Prince George's County Planning Board and with the local communities continued through the year.

The Smithsonian Science Information Exchange, Inc., received a supplemental appropriation of \$300,000 to provide for normal operation through the fiscal year.

The National Zoological Park master plan received preliminary approval from the Commission of Fine Arts and the National Capital Planning Commission. The plan emphasizes the landscape and animals, and subordinates the visual impact of building construction. Particular attention was given to the critical matter of automobile parking and traffic. At this meeting the Secretary reported that Robert A. Brooks will succeed Under Secretary James Bradley with the title of The Assistant Secretary

.



on 1 July 1972. The members of the Board recorded their appreciation of the extraordinary service that James Bradley has rendered to the Smithsonian.

At the conclusion of the meeting, the Board of Regents honored Dr. Charles G. Abbot, former Secretary of the Smithsonian Institution, on the occasion of his 100th birthday.

If one lesson has been learned this year it is that we must alert ourselves and all the powers that be in Washington that time will not stand still, and that the tidal wave of "company" will descend upon us inexorably in the next four years. We can paraphrase the poet and declare that "the World is too much with us late and soon, getting and begetting," but we know that the souls so created will crowd in upon us ever more closely—full of the stuff of life, endlessly consuming to ashes the remains of time and purpose, of objects carefully wrought, of past history. We cannot halt the tide but only make our preparations while we may and pray for affection and comprehension. If Americans have begun to indulge in self-doubt, let us rejoice, for this should be an encouragement. Self-doubt and a certain hesitancy can be the beginning of the road to self-knowledge and thus to comprehension and to wisdom. Can we not prepare for that?

## Financial Report

It is a rare experience for educational and research institutions to have adequate funds to take care of all their pressing needs and promising opportunities for improvements and imaginative new projects. In this respect, the Smithsonian Institution is no different from its counterparts. Nevertheless, fiscal year 1972 was one from which the Institution may derive a degree of satisfaction from improvements on a number of budgetary fronts—many of these resulting from programs initiated in previous years.

Increased FY 1972 federal appropriations, which account for over three-quarters of our total financial support, moved toward easing accumulated research support shortages and also made possible additional services to our visitors and the start of certain important new research projects. Private unrestricted fund accounts, vital to the unique character of this Institution, showed a favorable balance between income and expenditures for the first time in five years. This welcome result followed introduction of improved accounting and budgeting methods, tighter control of expenditures, a gradual extension of fund-raising efforts, and modest improvement in a number of revenue-producing areas. In addition, increased donations for specific purposes and larger grant and contract awards also benefited the many projects covered by these restricted-purpose funds. New policies adopted this year with respect to the handling of investment funds of the Institution are expected to bring important benefits in future years.

### *Overall Sources and Application of Financial Support*

Total support of the Institution from all sources for operating purposes approximated \$62,700,000 in fiscal year 1972, compared with \$52,800,000 in the previous year. In addition, \$6,347,000 was received for construction projects, somewhat less than the \$7,125,000 in FY 1971. Sources of support for the last four fiscal years 1969-1972 are shown below (in thousands):

	<i>FY 1969</i>	<i>FY 1970</i>	<i>FY 1971</i>	<i>FY 1972</i>
<b>OPERATING FUNDS</b>				
Federal appropriation				
Salaries and expenses . . . . .	\$29,150	\$32,679	\$36,895	\$46,301
Special Foreign Currency Program . . .	2,316	2,316	2,500	3,500
Subtotal . . . . .	\$31,466	\$34,995	\$39,395	\$49,801
Research grants and contracts . . . . .	11,624	10,825	9,312	8,088
Nonfederal funds:				
Gifts (excluding gifts to endowments)				
Restricted purpose . . . . .	1,806	2,290	1,905	2,618
Unrestricted purpose . . . . .	181	17	356	171
Income from endowment and current funds investment				
Restricted purpose . . . . .	924	999	1,115	1,178
Unrestricted purpose . . . . .	441	281	330	334
Miscellaneous . . . . .	476	503	406	548
Total Operating Support . . . . .	<u>\$46,918</u>	<u>\$49,910</u>	<u>\$52,819</u>	<u>\$62,738</u>
<b>CONSTRUCTION FUNDS (Federal)</b>				
National Zoological Park . . . . .	\$300	\$600	\$200	\$200
National Air and Space Museum . . . . .	-0-	-0-	-0-	1,900
Joseph H. Hirshhorn Museum . . . . .	2,000	3,500	5,200	3,697
Restoration and renovation of buildings .	400	525	1,725	550
Total . . . . .	<u>\$2,700</u>	<u>\$4,625</u>	<u>\$7,125</u>	<u>\$6,347</u>

It may be noted that in FY 1972 approximately 79 percent of the Institution's operating funds were supplied by federal appropriations, with an additional 13 percent coming in the form of research grants and contracts and only 8 percent being represented by private donations, investment income, and other miscellaneous nonfederal sources.

The application of these funds (with the exception of Special Foreign Currency Program funds and construction funds) in FY 1972 is indicated in Table 1, similar to the one provided for the first time in last year's annual report. Further detail on all of these funds follows.



TABLE 1.—Source of applications of funds (in thousands) year ended  
30 June 1972

Funds	Federal funds	Total	Non-federal funds			
			Unrestricted		Restricted	Grants and con- tracts
			General	Revenue producing		
FUND BALANCES—						
1 July 1972. ....	\$ -0-	\$ 3,773	\$ 1,720	\$ -0-	\$ 1,762	\$ 291
FUNDS PROVIDED						
Federal Appropriations	\$46,301					
Investment Income ..		\$ 1,512	\$ 334	\$ -	\$ 1,178	\$ -
Grants and Contracts .		7,847	-	-	-	\$7,847
Gifts .....		2,789	26	145	2,618	-
Sales and Revenue ...		7,157	831	6,196	130	-
Less: Cost of Sales ..		(4,838)	(813)	(3,999)	(26)	-
Other .....		565	219	104	242	-
Total Provided.	46,301	15,032	597	2,446	4,142	7,847
Total Available	46,301	18,805	2,317	2,446	5,904	8,138
FUNDS APPLIED						
Science:						
Environmental Science	1,110	975	62	-	204	709
Nat'l Museum of						
Nat. Hist. ....	5,679	1,205	20	-	250	935
National Zoological						
Park .....	3,827	46	1	-	6	39
Fort Pierce Bureau ...	-	788	-	-	788	-
Science Information						
Exchange .....	1,600	-	-	-	-	-
Smithsonian Astro.						
Observatory .....	2,653	4,880	1	-	124	4,755
Other Science .....	3,496	1,243	25	-	252	966
Total .....	18,365	9,137	109	-	1,624	7,404
History and Art:						
Nat'l Portrait Gallery .	924	42	4	-	38	-
Nat'l Collec. of Fine						
Arts .....	1,221	45	15	-	28	2
Freer Gallery .....	78	861	-	-	861	-
Nat'l Museum of Hist.						
and Tech. ....	2,457	140	44	-	73	23
Other History and Art	1,605	740	3	-	633	104
Total .....	6,285	1,828	66	-	1,633	129
Public Service:						
Revenue Producing						
Activities						
Smithsonian Press	816	135	-	135	-	-
Performing Arts ..	265	593	-	179	28	386
Other .....	-	2,273	-	2,273	-	-
Anacostia Museum ..	206	141	29	-	97	15
Other .....	806	387	90	-	297	-
Total .....	2,093	3,529	119	2,587	422	401

TABLE 1.—*Source of applications of funds (in thousands) year ended 30 June 1972—Continued*

Funds	Federal funds	Total	Non-federal funds			
			Unrestricted			Grants and con- tracts
			Revenue General producing	Restricted		
<i>Museum Programs</i>						
Libraries.....	864	51	50	-	1	-
Exhibits.....	3,105	76	-	-	76	-
Other Programs .....	1,912	9	9	-	-	-
Total.....	5,881	136	59	-	77	-
<i>Buildings Management</i>						
Dept. ....	\$10,442					
Administration: .....	3,235	\$2,643	\$2,643	\$ -	\$ -	\$ -
Overhead Recovered ..		(2,639)	(2,639)	-	-	-
Transfers for Desig- nated Purposes .....		(717)	179	(141)	(909)	154
TOTAL FUNDS AP- PLIED .....	\$46,301	\$13,917	\$ 536	\$2,446	\$2,847	\$8,088
FUND BALANCES—						
30 June 1972 .....	\$ -0-	\$ 4,888	\$1,781	\$ -0-	\$3,057	\$ 50

*Federal Appropriated Funds*

*Operations (Salaries and Expenses).*—As shown above in the tabulation of sources of support, Congress increased the Smithsonian's appropriation for regular operations by over \$9,400,000 in FY 1972. Of this amount, however, \$1,600,000 represented an appropriation for the Smithsonian Science Information Exchange (Table 1) which had been funded since 1964 by grants from the National Science Foundation. Nearly \$2,000,000 of the increase in appropriations, furthermore, was necessary merely to meet legislated increases in federal salaries. Continued inflationary cost increases for supplies and other services absorbed additional monies. Nevertheless, the remaining increase of more than \$5,000,000 included provision for an important start on correcting the serious imbalance between professional research and curatorial efforts, on the one hand, and the level of technical support for these efforts, on the other. Such technical support had been eroded in previous years as the limited funds available had to be increasingly devoted to salaries of the professional

staff, leaving progressively lesser amounts for technicians, assistants, equipment, and supplies. Accessions of new or expanded collections meanwhile accentuated such needs. Increases in appropriations provided in FY 1972 were the first step toward elimination over a three-year period of these shortages in the National Museum of Natural History.

Similarly, a \$500,000 increase for the National Zoological Park made possible improved veterinary treatment and research. An allowance of \$600,000 was received to implement the program of the National Museum Act, authorized in 1970; of this amount, \$200,000 was transferred by legislative requirement to the National Endowments for the Arts and Humanities. Other major benefits from increased Congressional support were directed toward the visiting public: funding of a major new exhibit, "The World of Living Things," provision for longer visitor hours for our Mall museums, the opening of the Renwick Gallery, and stepped-up preparations for the opening of the Hirshhorn Museum. Finally, \$500,000 was provided for Smithsonian's share of a group effort to establish a new, large, low-cost, multi-mirror telescope which should represent a breakthrough in instrumentation of this type and lead to important new discoveries in astrophysics.

The division of the Institution's federal appropriations for operating purposes (excluding special Foreign Currency Program) in recent years, among its broad areas of services, has been as follows (in thousands):

	<i>FY 1969</i>	<i>FY 1970</i>	<i>FY 1971</i>	<i>FY 1972</i>
Science .....	\$10,467	\$11,761	\$13,495	\$18,365*
History and Art.....	4,287	5,081	5,878	6,285
Public Service .....	1,159	1,445	1,442	2,093
Museum Programs.....	3,260	3,592	3,744	5,881
Administration .....	2,526	2,733	3,051	3,235
Building Maintenance ....	7,451	8,067	9,285	10,442
	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>
Total.....	\$29,150	\$32,679	\$36,895	\$46,301
	<u>          </u>	<u>          </u>	<u>          </u>	<u>          </u>

\*Includes \$1,600,000 for the Science Information Exchange which had been funded since 1964 by grants from the National Science Foundation.

After allowance for the change in form of funding of the Science Information Exchange in FY 1972, the percentage share of each of the service areas has remained fairly constant in this four-year period, except that the combined share of Administration and Building Maintenance has fallen from 34 to 31 percent, with slight percentage increases in Science and Public Service.



*Special Foreign Currency Program.*—Since 1966 the Smithsonian has been administering a program of grants benefiting more than 200 museums and universities in the United States in order that they may carry on research in certain foreign countries where blocked currency credits, usable only in those countries, are available to the United States in return for services previously provided. Annual appropriations to the Smithsonian from available blocked currency to fund such grants increased in FY 1972 from \$2,500,000 to \$3,500,000. Use of such grant monies in FY 1972 was as follows (in thousands):

	<i>Archeology</i>	<i>Systematic and environ- mental biology</i>	<i>Astrophysics and earth sciences</i>	<i>Museum programs</i>	<i>Grant adminis- tration</i>	<i>Total</i>
India . . . . .	\$ 374.8	\$ 144.9	\$ 22.8	\$ 8.4	\$ 4.6	\$ 555.5
Israel . . . . .	373.7	21.9	108.2	1.0	1.8	506.6
Morocco . .	6.2	63.0	-	1.3	-	70.5
Pakistan . .	5.0	8.5	-	-	-	13.5
Poland . . .	51.4	8.0	3.2	4.6	-	67.2
Tunisia . . .	135.1	355.7	9.1	.6	2.1	502.6
UAR-Egypt	511.2	31.0	111.9	3.7	1.6	659.4
Yugoslavia .	227.8	774.4	-	4.9	1.8	1008.9
Burma . . . .	.1	.1	-	-	-	.2
Total . .	<u>\$1685.3</u>	<u>\$1407.5</u>	<u>\$255.2</u>	<u>\$24.5</u>	<u>\$11.9</u>	<u>\$3384.4*</u>

\*Unobligated balance of FY 1972 appropriation carried forward for use in FY 1973.

*Construction.*—From the tabulation of sources of support, it can be seen that Congress appropriated to the Smithsonian Institution in FY 1972, a total of \$6,347,000 for construction purposes. Of this, \$3,697,000 represented the final balance of the \$15 million authorized by Congress for the Hirshhorn Museum construction, which is to be completed in FY 1973. In addition, \$1,900,000 was granted to cover the planning and redesign of the new National Air and Space Museum on the Mall, construction of which was authorized in 1966. Another \$750,000 was appropriated for completion of the Renwick Gallery renovation plus various relatively minor improvements elsewhere.

### *Research Grants and Contracts*

An important part of the Institution's research work is funded by grants and contracts received from federal agencies. Following is a

tabulation (in thousands) of such grants and contracts in recent years, the data being expressed in terms of expenditures as being the most meaningful indicator of research activity funded by this means since the awards themselves are spread over varying and extended periods of time.

	<i>FY 1969</i>	<i>FY 1970</i>	<i>FY 1971</i>	<i>FY 1972</i>
Department of Health, Education, and Welfare .	\$ 272	\$ 326	\$ 297	\$ 132
Department of Defense . . . .	1,667	1,086	843	916
National Aeronautics and Space Administration . . .	7,265	6,561	4,930	4,605
National Science Foundation	2,099	2,246	2,028	560
Other . . . . .	321	606	1,214	1,875
	<hr/>	<hr/>	<hr/>	<hr/>
Total . . . . .	<u>\$11,624</u>	<u>\$10,825</u>	<u>\$9,312</u>	<u>\$8,088</u>

The decline in the total for FY 1972 compared with FY 1971 was caused entirely by the elimination in this past year of the National Science Foundation grant for the Science Information Exchange. In FY 72 Smithsonian took over the responsibility for the funding, as well as the management of, the Exchange with its \$1,600,000 becoming a new separate Smithsonian federal appropriation rather than being received in the form of a contract. With this exception, there has been an increase in federal grants and contracts received during the past year.

It may be noted from Table 1, that the major recipient of grants and contracts is the Smithsonian Astrophysical Observatory, with a total of \$4,755,000 for FY 1972. Grants to the Observatory covered, among other things, work done on tracking of satellites, monitoring of stellar observations from the telescope satellite and experiments concerning continental drift. A large share of the remaining research grants and contracts went to the scientists of our National Museum of Natural History and the Office of Environmental Sciences covering a variety of studies from sources of endemic Asian diseases to analysis of the contents of areas of the oceans. Grants and contracts also extended beneficially the work of our Oceanographic Sorting Center, Tropical Research Center, and Division of Performing Arts. A major contract, received near the close of the fiscal year, will fund worldwide population studies by our Interdisciplinary Communications Program.

*Private Trust Funds*

As mentioned earlier, the largest part of the funding of the Institution comes from federal appropriations, augmented further by substantial

amounts of grants and contracts from federal agencies. Equally important in many ways, however, is the "private side" of the Institution, since, the Smithsonian derives its unique character in large part from this combination of Governmental and private support, permitting operating flexibility, nonpolitical objectivity, and greater attraction to its many private donors.

The resources for the Smithsonian private side are in the form of income from endowment funds, donations from foundations, corporations or individuals, and to a lesser extent, receipts from concessions and miscellaneous sources. In appraising these resources an important distinction must be made between income received for unrestricted as compared with restricted purposes. The largest share of both the investment and gift income is for specific (restricted) purposes, with only a regrettably small unrestricted portion which can be directed to support Institutionally determined priority needs or promising program opportunities.

In fiscal year 1972 the private fund income, excluding gifts to endowment funds, for both restricted and unrestricted purposes totaled \$4,849,000 as follows (in thousands):

	<i>Unrestricted purposes</i>	<i>Restricted purposes</i>	<i>Total</i>
Investments.....	\$334	\$1,178	\$1,512
Gifts .....	171	2,618	2,789
Concessions and Miscellaneous .....	306	242	548
	<u>          </u>	<u>          </u>	<u>          </u>
Total.....	<u>\$811</u>	<u>\$4,038</u>	<u>\$4,849</u>

Not included in the above figures are the results of our revenue-producing activities, such as, the *Smithsonian* Magazine and museum shops, since on balance these activities do not yet produce net income although they are expected to do so in the future.

*Unrestricted Private Funds.*—The most significant fact about this important segment of the Smithsonian's financial affairs is that in FY 1972 a favorable balance was reestablished between income and expenditures. The gain of \$61,000 was, of course, small, but it was achieved at a time when many educational institutions and museums are reporting serious financial losses. It was also achieved despite the continued rise in costs and pressing needs for greater services—factors that contributed heavily to the Smithsonian's own losses of private unrestricted funds in the previous four years.

As may be seen from these figures, the improvement in FY 1972 resulted principally from (1) control of administrative expenses and their recovery through proper charges to grants and contracts, revenue-producing activities, and other privately funded programs of the Institution, and (2) the nearly \$400,000 reduction in the loss of our revenue-



	<i>FY 1969</i>	<i>FY 1970</i>	<i>FY 1971</i>	<i>FY 1972</i>
<b>INCOME:</b>				
Investment .....	\$ 379*	\$ 323	\$ 334	\$ 334
Gifts .....	181	18	304	26
Concession & Misc. ....	244	540	215	197
	<hr/>	<hr/>	<hr/>	<hr/>
Total Income .....	804	881	853	557
<b>EXPENDITURE:</b>				
Admin. Expense .....	2,983	3,256	2,723	2,994
Less Admin. Recovery ....	2,390	2,435	2,254	2,639
Net Admin. Expense ...	593	821	469	355
<b>Revenue Producing Activities</b>				
Magazine .....	(70)	(472)	(209)	2
Shops .....	(25)	(28)	(80)	19
Press .....	(127)	(200)	(159)	(111)
Associates .....	57	(41)	10	74
Performing Arts .....	(60)	(167)	(78)	(50)
Other Activities .....	(231)	(133)	(18)	(75)
Total Activities ....	<hr/> (456) <hr/>	<hr/> (1,041) <hr/>	<hr/> (534) <hr/>	<hr/> (141) <hr/>
	<hr/>	<hr/>	<hr/>	<hr/>
Total Expenditures ..	1,049	1,862	1,003	496
	<hr/>	<hr/>	<hr/>	<hr/>
Net Gain (Loss) ....	(245)	(981)	(150)	61
	<hr/>	<hr/>	<hr/>	<hr/>
Ending Balance ....	<u>\$2,851</u>	<u>\$1,870</u>	<u>\$1,720</u>	<u>\$1,781</u>

\*In thousands.

producing activities. Together these two factors more than offset the absence in FY 1972 of a special one-time \$300,000 gift for unrestricted purposes, which was so beneficial in FY 1971.

The gain of \$61,000 in FY 1972 reversed the down-trend in the balance of our unrestricted funds and increased it slightly to \$1,781,000 at 30 June 1972. This figure, however, is still well below a comfortable level for current working funds of the Institution. Intensive steps must be continued to rebuild this working capital by more than \$1 million to at least the \$2,851,000 figure existing at the end of 1969. More than \$1 million of such working capital is required to support grant and contract work performed before payment is received, another \$700,000 for investment in inventories, and at least \$1 million more must be maintained for payrolls, accounts receivable, and cash fluctuations of a seasonal nature.

There is, however, reason to believe that improvement in this direction lies ahead. Our Development Office, together with the National Associates

Organization, is now working on a program which will hopefully produce an annual flow of donations and bequests from an increasingly large number of interested parties. Approximately \$171,000 of gifts for unrestricted purposes were received in FY 1972 in addition to much larger grants, principally from foundations, for specifically designated purposes (see "Restricted Private Funds" below).

At the same time our revenue-producing enterprises show promise of producing significant income in the next several years to bolster our private resources. Additional data on the finances of these revenue-producing activities in FY 1972 are as follows (in thousands):

	Total	Museum shops	Press*	Magazine	Associates	Per- forming arts	Other**
Sales and Revenues . .	\$6,196	\$1,374	\$127	\$3,307	\$872	\$130	\$386
Less Cost of Sales . . .	3,999	812	103	2,483	489	2	110
Gross Income. .	2,197	562	24	824	383	128	276
Gifts . . . . .	145	-	-	-	145	-	-
Other Income . . . . .	104	-	-	104	-	-	-
Total Income. .	2,446	562	24	928	528	128	276
Expenses . . . . .	2,207	424	115	776	412	162	318
Income (loss) before charge for adminis- trative costs . . . .	239	138	(91)	152	116	(34)	(42)
Less Administrative Costs . . . . .	380	119	20	150	42	16	33
Net Income (loss) . .	<u>\$ (141)</u>	<u>\$ 19</u>	<u>\$(111)</u>	<u>\$ 2</u>	<u>\$ 74</u>	<u>\$(50)</u>	<u>\$(75)</u>

\*The privately funded activities of the Press as opposed to the federally supported publication of research papers.

\*\*Includes Traveling Exhibitions, Belmont Conference Center, Photo Sales, and the "Commons" Restaurant.

In FY 1972 the *Smithsonian* Magazine again made excellent progress. Circulation increased from 275,000 at 30 June 1971 to 330,000 National Associate Members by 30 June 1972. Despite the unusual expenses related to the circulation-building efforts, financial results were greatly improved, registering \$2,500 net income for the year compared with a loss of \$209,000 in the previous year.

The Museum Shops showed a sharp 35 percent increase in volume this year. Financial results moved from previous losses to a gain of \$19,000 and should show increasing gains in the future. Shop areas were expanded

and a new shop will open at the Renwick Gallery in mid-1972. Two sales exhibitions and increasing emphasis on offering educational items reflecting the various museum exhibits contributed to the progress of these auxiliary operations.

The closely related program of product development is now underway. If successful it should become an important element in improving the balance between private and federal resources of the Institution. Equally important, this program is directed toward spreading nationally the Smithsonian's educational efforts through the distribution by independent manufacturers of authenticated items related to our collections. Great care will be taken with this program to maintain strict standards of quality, authenticity, and good taste.

As may be noted from the preceding tabulation, two other activities, the Smithsonian Press and the Division of Performing Arts, have required subsidies from our private funds in recent years. These programs provide both educational and entertainment value, but strenuous efforts are being directed toward elimination of their financial losses while preserving their cultural values.

*Restricted Private Funds.*—Additions to “restricted” funds dedicated to specific purposes (exclusive of gifts to endowment funds) totaled \$5,151,000 in FY 1972, but this included a special transfer of \$612,000 from the principal of Endowment Fund No. 3, in part to allow completion of the renovation of the research vessel *Johnson* at Fort Pierce, and in part as an advance against FY 1973 operating funds for this bureau. Including this special transfer, \$2,082,000 came from endowment funds, \$2,618,000 from donations, and \$451,000 from miscellaneous sources. The major bureaus and programs supported by these funds, together with their total related income and expenditures in FY 1972 were as follows (in thousands):

Bureau	Additions to funds				Deductions	Net increase (decrease)	Ending fund balances
	Investment	Gifts	Misc.	Total			
Freer Gallery . . . .	\$ 679	\$ 7	\$ 84	\$ 770	\$ 861	\$ (91)	\$ 120
Fort Pierce. . . . .	1,012*	-	5	1,017	788	229	484
CBCES Land Program. . . . .	-	360	58	418	392	26	158
Cooper Hewitt—Operating. . . .	32	128	15	175	234	(59)	243
Cooper Hewitt—Renovation. . .		792		792	20	772	806
Reading is Fundamental . . . . .		296		296	293	3	65



Anacostia Museum		63		63	97	(34)	26
Archives of American Art. . . . .	4	40	99	143	126	17	86
Subtotal . .	1,727	1,686	261	3,674	2,811	863	1,988
Other Restricted							
Funds. . . . .	355	932	190	1,477	1,045	432	1,068
Total. . . . .	<u>\$2,082</u>	<u>\$2,618</u>	<u>\$451</u>	<u>\$5,151</u>	<u>\$3,856</u>	<u>\$1,295</u>	<u>\$3,056</u>

\*Including \$612 special transfer from principal of Endowment Fund No. 3.

The Freer Gallery is largely supported by income from endowment funds originally provided for this purpose by Charles Freer at the time of the construction of the Gallery; it also receives some federal support. Inflationary cost increases of recent years have made it increasingly difficult to operate within available income.

The Fort Pierce, Florida, oceanographic facility is supported entirely by income from Endowment Fund No. 3, donated to the Smithsonian for this purpose during the past two years. The Center's expenditures have been principally for research operations of the Center's oceanographic submersible, the *Johnson-Sea-Link*, and for renovation of the tender ship, *R/V Johnson*. These renovations, to be completed in September 1972, caused FY 1972 expenditures to exceed available endowment fund income, necessitating a one-time withdrawal of funds in FY 1972 for this purpose from the principal of the endowment fund itself.

Two important new gifts in support of the Chesapeake Bay Center's land acquisition program were received during this year—\$200,000 from the Richard King Mellon Foundation and \$120,000 from The Scaife Family of Pittsburgh. These gifts made possible the repayment of a \$175,000 loan previously incurred for land purchases, as well as the purchase of an additional parcel of land, and brought to \$1,669,000 the total thus far received for this project. Most of the major plots of land have now been obtained and negotiations are in progress for the remaining areas. Substantial additional sums will still be required to complete payments for these acquisitions.

The planned renovation of the Carnegie Mansion in New York City to house the Cooper-Hewitt Museum was launched in a most encouraging way in December 1971 by a grant of \$500,000 from the A. W. Mellon Foundation. Nearly \$300,000 more of renovation funds has also been received from other sources. In addition, gifts totaling \$128,000 were received during the year toward the operating programs of the Museum. This Museum will need greater financial support for both purposes in future years.

The Reading Is Fundamental Program, initiated by Mrs. Robert S. McNamara and now operated in association with the Smithsonian, has

been generously supported by the Ford Foundation, and the program has now been awarded a new grant from the Edna McConnell Clark Foundation totaling \$1,130,000 over a three-year period. This should enable R.I.F. to become self-sustaining thereafter.

A complete list of donors for FY 1972 is included at the end of this financial report.

*Endowment Funds.*—The Smithsonian endowment funds are handled in three separate investment accounts, namely, the Freer Fund, dedicated entirely to the operation of the Freer Gallery of Art; Endowment Fund No. 3, devoted entirely to oceanographic research; and the Consolidated Fund in which all other endowment and similar funds of the Institution are pooled for common investment although maintained separately for accounting and administrative purposes. A listing of individual funds included in our Consolidated Fund and their related book values, market values, net income and unexpended income balances are set forth in Table 2.

The growth of these endowment funds in recent years is shown in the following comparison of their market values at intervals since 1960 (in thousands):

	30 June 1960	30 June 1965	30 June 1970	30 June 1971	30 June 1972
Freer Fund . . . . .	\$13,389	\$17,276	\$14,987	\$18,805	\$21,973
Endowment Fund No. 3	-	-	5,433	12,331	14,641
Consolidated Fund . . .	4,498	7,853	8,998	11,470	13,287
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
Total . . . . .	\$17,887	\$25,129	\$29,418	\$42,606	\$49,901
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>

Of the \$32,014,000 total increase from 30 June 1960 to 30 June 1972, \$7,354,000 of Endowment Fund No. 3 and \$6,277,000 of Consolidated Fund was the result of additions from donations and reinvestment of income and the remaining \$18,383,000 represented an increase in the market values of securities. During the year ended 30 June 1972, net additions of new funds to the Consolidated Fund equaled \$131,000, while a net amount of \$891,000 was transferred from Endowment Fund No. 3 to current operating accounts; market appreciation of total funds in this year amount to \$8,055,000.

Effective 1 July 1971, management of these funds were distributed among three different investment managers with performance being monitored closely by the Investment Policy Committee and the Treasurer. The results achieved thus far have substantially exceeded the average rise in stock values in the 12-month period to 30 June 1972. A breakdown of

TABLE 2.—*Consolidated fund, 30 June 1972*

<i>Funds participating in pool</i>	<i>Principal</i>		<i>Income</i>	
	<i>Book value</i>	<i>Market value</i>	<i>Net income 1972</i>	<i>Unexpended balance</i>
UNRESTRICTED FUNDS. . .	\$4,320,791	\$5,020,577	\$196,411	\$ —
RESTRICTED FUNDS:				
Abbott, William L. . . . .	196,791	248,895	9,029	2,261
Archives of American Art. . . .	22,107	26,365	1,245	—
Armstrong, Edwin James . . . .	3,561	3,849	134	—
Arthur, James. . . . .	63,649	96,774	4,571	8,409
Bacon, Virginia Purdy. . . . .	173,040	194,248	7,046	13,643
Baird, Spencer Fullerton . . . .	58,394	86,506	4,086	1,342
Barney, Alice Pike . . . . .	45,647	69,349	3,276	3,025
Barstow, Frederic D. . . . .	1,887	2,383	86	1,601
Batchelor, Emma E. . . . .	63,205	69,231	2,411	117
Becker, George F. . . . .	297,170	336,207	12,196	23,987
Brown, Roland W. . . . .	52,090	66,140	3,124	3,334
Canfield, Frederick A. . . . .	60,592	106,623	5,037	1,742
Casey, Thomas Lincoln . . . . .	23,661	29,985	1,088	51
Chamberlain, Frances Lea . . . .	44,817	68,092	3,217	7,283
Cooper, G. Arthur, Curator's Fund. . . . .	2,067	2,201	73	—
Cooper-Hewitt Museum . . . . .	156,010	165,160	7,178	40,596
Division of Mammals Curator Fund. . . . .	3,419	3,955	183	1,194
Division of Reptiles Curator Fund. . . . .	552	668	32	79
Drake, Carl J. . . . .	275,890	303,741	13,830	14,690
Dykes, Charles . . . . .	81,283	102,933	3,734	3,707
Eickemeyer, Florence Brevoort . . . . .	17,299	26,273	1,241	8,836
Guggenheim, David and Florence . . . . .	191,619	191,971	8,178	—
Hanson, Martin Gustav & Caroline Runice . . . . .	16,784	21,255	771	11,045
Hillyer, Virgil . . . . .	12,409	15,724	570	6,461
Hitchcock, Albert S. . . . .	2,510	3,877	183	651
Hrdlicka, Ales and Marie . . . .	97,214	120,480	5,691	4,081
Hughes, Bruce . . . . .	30,462	46,337	2,189	21,092
Johnson, E. R. Fenimore . . . .	15,404	15,737	571	3,380
Kellogg, Remington, Memorial	23,697	24,661	750	393
Lindsey, Jessie H. . . . .	595	681	32	210
Loeb, Morris . . . . .	164,803	210,802	7,647	361
Long, Annette E. and Edith C.	864	1,349	64	358
Lyons, Marcus Ward. . . . .	8,261	8,497	308	—
Maxwell, Mary E. . . . .	31,215	47,477	2,243	20,830
Myer, Catherine Walden . . . . .	38,147	48,313	1,753	5,243
Nelson, Edward William . . . . .	37,955	53,764	2,540	798
Noyes, Frank B. . . . .	1,828	2,435	88	1,028
Pell, Cornelia Livingston . . . .	14,007	17,836	647	7,766
Petrocelli, Joseph Memorial . .	11,796	18,009	851	7,351
Rathbun, Richard Memorial. . .	20,094	25,555	927	9,220
Ramsey, Admiral and Mrs. Dewitt Clinton . . . . .	516,264	537,382	19,414	61,730
Reid, Addison T. . . . .	33,581	42,523	1,543	248
Roebing Collection . . . . .	192,112	290,428	13,719	2,546



TABLE 2.—*Consolidated fund, 30 June 1972—Continued*

<i>Funds participating in pool</i>	<i>Principal</i>		<i>Income</i>	
	<i>Book value</i>	<i>Market value</i>	<i>Net income 1972</i>	<i>Unexpended balance</i>
Roebling Solar Research. . . .	\$46,823	\$54,944	\$1,993	\$ —
Rollins, Miriam and William. .	288,488	390,434	18,016	9,472
Smithsonian Agency Account	135,939	136,876	3,805	—
Sprague, Joseph White . . . . .	2,118,369	2,349,087	108,398	27,162
Springer, Frank. . . . .	28,541	43,338	2,047	18,866
Stevenson, John A. . . . .	9,665	11,774	556	211
Strong, Julia D. . . . .	18,888	24,014	871	2,495
T.F.H. Publications, Inc. . . . .	8,349	7,733	280	10,847
Walcott, Charles D. . . . .	184,921	244,216	11,270	1,838
Walcott, Charles D. and Mary Vaux. . . . .	732,340	1,111,955	52,526	14,141
Walcott Botanical Publications	92,223	134,887	6,372	—
Zerbee, Francis Brinckle. . . .	1,510	2,279	108	1,544
<b>Total Restricted Funds</b>	<b>\$6,770,814</b>	<b>\$8,266,208</b>	<b>\$359,838</b>	<b>\$387,267</b>
<b>Total Consolidated Fund. . . . .</b>	<b>\$11,091,605</b>	<b>\$13,286,785</b>	<b>\$556,249</b>	<b>\$387,267</b>

the three endowment funds as of 30 June 1972, showing types of investments held, with related book and market values, is given in Table 3. A listing of the individual investments held in the various endowment funds may be obtained upon request to the Treasurer of the Institution.

Much attention has been given to the management of the Institution's endowment funds during the past three years. In addition to the steps taken by the Board of Regents in FY 1971 to establish the Investment Policy Committee and, upon its recommendation, to appoint new investment managers with full discretion for the investment of the funds (subject to broad policies established by the Board and to prompt reporting of transactions), we have been investigating for some time the desirability of adopting "Total Return" as the investment goal of all of our endowment funds. Briefly, this concept of investment management is in two parts: first, it establishes maximum total return (interest and dividend income plus appreciation in market values), without assuming an inappropriate degree of risk, as the investment management goal; second, it provides that the income to be derived from the endowment funds, in lieu of interest and dividends received by the fund in that year, shall be a prudent amount determined in relation to the value of the funds, taking into account both present and future needs of the Institution. The purpose

TABLE 3.—*Endowment and similar funds summary of investments and other assets as of 30 June 1972*

<i>Funds</i>	<i>Book value</i>	<i>Market value</i>
<b>INVESTMENT ACCOUNTS</b>		
<i>Freer Fund:</i>		
Cash .....	198,100	198,100
Bonds .....	4,220,980	4,317,963
Convertible bonds .....	3,656,150	4,004,940
Convertible preferred stock .....	671,577	783,305
Common stocks .....	6,700,314	12,668,632
Total .....	15,447,121	21,972,940
<i>Consolidated Funds:</i>		
Cash .....	657,754	657,754
Bonds .....	3,500,791	3,499,813
Convertible bonds .....	396,092	502,125
Convertible preferred stock .....	247,581	164,000
Common stocks .....	6,289,387	8,463,093
Total .....	11,091,605	13,286,785
<i>Endowment Fund No. 3:</i>		
Cash .....	443,234	443,234
Bonds .....	163,123	175,773
Common stocks .....	6,414,077	14,021,797
Total .....	7,020,434	14,640,804
<i>Miscellaneous:</i>		
Bonds .....	10,064	9,875
Common stocks .....	3,321	18,402
Total .....	13,385	28,277
Total investment accounts .....	33,572,545	49,928,806
<i>Other Accounts:</i>		
Notes receivable .....	95,316	95,316
Loan to U.S. Treasury in perpetuity .....	1,000,000	1,000,000
Total other accounts .....	1,095,316	1,095,316
Total Endowment and Similar Fund Balances .....	34,667,861	51,024,122

of the policy is to allow investment in the most attractive securities from the point of view of expected total investment return without the need to restrict them to those providing higher current yields.

With the agreement of the Board of Regents, this policy has been followed during the past year for "quasi-endowment" funds (namely those in which the principal, as well as interest and dividend, yields may be used for the purposes specified), a course of action now followed by many

leading universities since adoption of the policy was first recommended by a study financed by the Ford Foundation. More recently, the Institution has received from the Washington firm of Covington & Burling a strong legal opinion supporting its use of the Total Return policy for true endowment funds as well as quasi-endowment funds. Based upon this opinion and upon the recommendation of our Investment Policy Committee, the Board of Regents, in May 1972, authorized adoption of the Maximum Total Return policy as the goal for all of our endowment funds. It is believed that this policy, which also has the full support of our three investment managers, will enable our endowment funds to show an improved record in future years.

The Board of Regents also approved the recommendation of the Investment Policy Committee that the prudent amount of income to be derived from the endowment funds should be 4½ percent annually based upon the moving five-year average market values of each of the funds. Insofar as income is concerned, there will be little immediate effect on any of the funds except the Freer Fund; endowment income to the Freer Gallery will increase immediately by over \$100,000 per year and bring beneficial relief to that gallery in keeping abreast of its expenditure requirements.

*Accounting and Auditing.*—As mentioned earlier the improved financial results in FY 1972 were aided in no small measure by beneficial changes in accounting and budgeting procedures and reports instituted by our Accounting, Budgeting and Grant Administration offices over the past two or three years. The control budgets, reporting of monthly operations, and regular monthly financial review meetings, combined with increased participation in the planning and budgeting process at bureau and administrative levels have all served to clarify the Institution's basically complex financial affairs. Increasing use of computer program aids is a part of these efforts. Appreciation is expressed herewith to the staffs of these offices for their initiative shown in this important work.

Private side finances of the Institution are annually audited in full by independent public accountants; their report for FY 1972 on following pages includes comparative balance sheets and a statement of changes in balances in all the various funds. Grant and contract monies received from federal agencies are audited annually by the Defense Contract Audit Agency. Audits of federally appropriated funds, as well as portions of the Institution's non-federal funds, are conducted regularly by our own internal audit staff, and from time to time by the General Accounting Office. Special Foreign Currency grants are also audited by the internal auditing staff aided by foreign independent accountants, and in some cases by the audit staff of the U.S. Department of Agriculture.



*Donors to the Smithsonian*

The Smithsonian Institution gratefully acknowledges gifts and bequests received during fiscal year 1972 from the following:

*\$100,000 or more:*

The Ford Foundation  
Mrs. Enid A. Haupt  
International Business Machines  
Corporation

The Andrew W. Mellon Foundation  
Richard King Mellon Foundation  
Scaife Family Charitable Trusts

*\$10,000 or more:*

American Federation of Information  
Processing Society  
American Law Institute  
Anonymous  
Archives of American Art Trustees  
Barra Foundation, Inc.  
Battelle Memorial Institute  
Mrs. W. Vincent Astor  
The Morris & Gwendolyn Cafritz  
Foundation  
Carnegie Corporation of New York  
Celanese Corporation  
The Charron Foundation  
Edna McConnell Clark Foundation, Inc.  
The Commonwealth Fund  
Doubleday Communication Corporation  
Mrs. Lionel C. Epstein  
Estate of Susan Dwight Bliss  
Ford Motor Company  
The Daniel and Florence Guggenheim  
Foundation  
Mr. & Mrs. H. E. Hawkes  
Interdisciplinary Communications  
Program

Ittleson Family Foundation  
The J. M. Kaplan Fund, Inc.  
Mrs. Remington Kellogg  
Samuel H. Kress Foundation  
Miles Laboratories  
Mobil Foundation, Inc.  
National Geographic Society  
The Nature Conservatory  
New York State Council on the Arts  
Edward John Noble Foundation  
Phillip Morris Incorporated  
Radio Corporation of America  
Laurance S. Rockefeller  
Sears, Roebuck and Company  
The Stans Foundation  
Hattie M. Strong Foundation  
Mr. & Mrs. Bertrand L. Taylor III  
Tupper Foundation  
van Ameringen Foundation, Inc.  
Washington Planetarium and Space  
Center  
Xerox Corporation

*\$1,000 or more:*

Alcoa Foundation  
American Conservation Association  
American Society of Civil Engineers  
Anonymous  
Antiquariaat Junk  
Arkville E. R. P. F.  
Mrs. Hester M. Ayers  
Mrs. Frederic C. Bartlett  
Mrs. Leon Barzin  
The Bass Foundation

The Beal Foundation  
Mr. David P. Becker  
Borg Warner Co.  
Boston Safe Deposit & Trust Co.  
Mrs. George R. Brewer  
The Brown Foundation, Inc.  
Mr. John Nicholas Brown  
Mr. David Bruce  
Brunschwig & Fils, Inc.  
The Bunker Foundation, Inc.

*\$1,000 or more—Cont.*

Mr. Wiley N. Caldwell	The Link Foundation
Caterpillar Tractor Co.	George Little Memorial Foundation, Inc.
The Chesapeake Bay Foundation	Massachusetts Institute of Technology
Coca-Cola U.S.A.	Mr. Devereaux F. McCatchey
Dr. Harold J. Coolidge	Mr. Robert L. McNeil
Cooper-Hewitt Museum Building Games	Mrs. Loudon Mellen
Mr. Julien Cornell	Melville Shoe Co.
Mr. John A. Corron	Merck & Company
Dr. William H. Crocker	Miss Ethel Merman
Dart Industries, Inc.	Ingram Merrill Foundation Trust
John Deere Foundation	University of Michigan
Dodge Foundation	Mrs. Irene Morden
Dow Chemical Co.	Eugene & Agnes E. Meyer Foundation
Dr. William L. Elkins	National Capital Parks
Mr. & Mrs. Alfred U. Elser, Jr.	National Council on Arts
Entomological Society of America	National Endowment for the Humanities
Dr. Clifford Evans	National Park Service
Mr. Joseph I. Ferguson	State of New York
Mr. S. S. Forrest, Jr.	New York Zoological Society
Fort Worth Zoo Association	Richard Nixon Foundation
Mrs. Edith Hebold Freidberg	The Tai Ping Foundation, Inc.
Mr. Charles H. Frey	Mrs. Marjorie Merriweather Post
General Telephone & Electronics Foundation	William Randolph Hearst Foundation
George Washington University	Reader's Digest
Dr. Gordon D. Gibson	Rockefeller Brothers Fund
The Lillian Gish Foundation, Inc.	Mrs. John D. Rockefeller IV
William Glackens Exhibition	Mrs. Dorothy F. Rodgers
Mr. Alfred C. Glassell, Jr.	Clara Louise Safford Estate
Dr. Crawford H. Greenewalt	Mr. Bert Sager
Mrs. Lloyd P. Griscom	Salt Lake City Tribune
Mr. & Mrs. Walter Haas, Jr.	Dr. Seuss Foundation
Marian Hagu Estate	Mrs. Arthur L. Shipman, Sr.
Hamilton Standard & United Aircraft Corp.	Sidney Printing & Publishing Co.
Dr. J. Hasinger	Mr. Robert Hilton Smith
Mr. & Mrs. Samuel Hill, Jr.	The Stanley Works
Susan Morse Hilles Agency	Summerhill Foundation
Humble Oil Company	The Allie L. Sylvester Foundation
Imperial Embassy of Iran	E. V. Thaw & Co.
Industrial Designers Society of America	Mr. Joseph A. Thomas
Institute for Psychiatry & Foreign Affairs	Mr. & Mrs. Edgar J. Thompson
International Telephone & Telegraph Co.	Mrs. John Tishman
The Iran Foundation, Inc.	Marcia Brady Tucker Foundation, Inc.
Johns Hopkins University	Mrs. Hildegard G. van Roijen
The Kiplinger Foundation, Inc.	Mr. Dewitt Wallace
Mr. Harold F. Linder	Mr. Thomas J. Watson, Jr.
Mr. Charles A. Lindbergh	Ellen Bayard Weedon Foundation
	Wildenstein & Co., Inc.
	Youth Friends Association, Inc.
	Mr. Harry W. Zichtermann

*\$500 or more:*

Mr. & Mrs. John W. Auchincloss	Nickerson Charitable Fund
The Lily Auchincloss Foundation	Mr. & Mrs. Nottin
Miss Isabell Allen	Mr. & Mrs. Nelson R. Nottingham
Allied Chemical Foundation	Louise L. Ottinger Foundation
American Geophysical Union	Paccar Foundation
Mr. & Mrs. B. V. Ayers	Mr. Vito A. Passeno
Mr. & Mrs. George Bashlow	Dr. & Mrs. E. Lee Porter
Mr. & Mrs. Lewis Baskin	Mr. M. P. Potamkin
Mr. & Mrs. Roger K. Becker	Mrs. Augustus Riggs IV
Bell & Howell Foundation	Mrs. Nedenia H. Robertson
Ms. Barbara Berry	Mr. D. H. Robinson
Mr. & Mrs. Arthur Bissell	Mr. & Mrs. Howard F. Ross
Mr. Edwin Caplin	Helena Rubinstein Foundation, Inc.
Mr. & Mrs. Robert G. Cleveland	Dr. Peter S. Scott
Mr. & Mrs. E. H. Clocker	Mr. Robert W. Shackleton
Mr. & Mrs. Leonard H. Cohan	Mr. Arthur L. Shipman, Sr.
Mr. R. G. Conley	Shure Brothers, Inc.
Mr. Richmond A. Day	Mr. & Mrs. Montgomery M. Smith
Mr. & Mrs. Bern Dibner	E. R. Squibb & Sons, Inc.
Mr. L. Gordon Fiske	Miss Marilyn L. Steinbright
Mr. Blanton Fortson, Jr.	Mr. & Mrs. Harry N. Stevens
Mr. Herb Glass	Stroheim & Romann
Mr. & Mrs. Harry Griffin	Tote-Em-Zoo
Mr. Frederick Haupt III	Tucson Gem & Mineral Society
Mr. John Jago	UNESCO
Mr. & Mrs. B. G. Lainson	Colonel & Mrs. Julius Wadsworth
Mrs. Cazenove Lee	Mr. Robert W. Wallick
Mr. & Mrs. Steward W. Livermore	Mr. Jay N. Whipple, Jr.
James A. MacDonald Foundation	Mrs. Ben White
The Magnavox Foundation, Incorporated	Mr. Sargent White
University of Maine	Whitney Museum of American Art
Mr. Morton D. May	Mr. Alanson Willcox
Dr. & Mrs. George Morrice	Womens Committee of the Smithsonian
Mr. & Mrs. James Duncan Munro	Institution
Newark Museum Association	Mrs. Rose Saul Zalles

We also gratefully acknowledge other contributions in the amount of \$141,749.00 received from 1,196 persons during 1972.



## PEAT, MARWICK, MITCHELL &amp; CO.

CERTIFIED PUBLIC ACCOUNTANTS  
1025 CONNECTICUT AVENUE, N.W.  
WASHINGTON, D.C. 20036

*The Board of Regents  
Smithsonian Institution:*

We have examined the balance sheet of private funds of Smithsonian Institution as of 30 June 1972 and the related statement of changes in fund balances for the year then ended. Such statements do not include the account of the National Gallery of Art, the John F. Kennedy Center for the Performing Arts, nor other departments, bureaus and operations administered by the Institution under federal appropriations. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

As explained in note 1 of the notes to financial statements, the Institution has consistently followed the practice of reflecting in its financial statements as fixed assets only museum shops and computer equipment and other fixed assets acquired through gift or through use of gift funds. Generally accepted accounting principles for non-profit organizations require the recording of all fixed assets in the financial statements.

In our opinion, except for the method as discussed in the preceding paragraph, the accompanying balance sheet and statement of changes in fund balance of private funds present fairly the financial position of Smithsonian Institution at 30 June 1972, and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

PEAT, MARWICK, MITCHELL & CO.

29 August 1972

# SMITHSONIAN INSTITUTION BALANCE SHEET OF PRIVATE FUNDS 30 JUNE 1972

(With comparative figures for 1971) (Note 1)

<i>Assets</i>		
	1972	1971
<b>CURRENT FUNDS:</b>		
Cash:		
In U.S. Treasury .....	\$ 172,821	\$ 413,857
In banks and on hand .....	290,917	155,997
Total Cash .....	<u>463,738</u>	<u>569,854</u>
Investments - at cost (market value \$49,530; \$2,735,996 in 1971) .....	<u>4,186,224</u>	<u>2,868,032</u>
Receivables:		
Accounts .....	774,332	774,722
Advances - travel and other .....	160,106	194,835
Reimbursements - grants and contracts .....	986,797	1,369,306
	<u>1,921,235</u>	<u>2,338,863</u>
Inventories at lower of cost or net realizable value	567,210	522,908
Prepaid expense .....	114,047	116,988
Deferred magazine expenses (note 2) .....	749,226	404,472
Equipment (less accumulated depreciation of \$189,804; \$71,636 in 1971) (note 1 and 3) ..	408,211	521,325
Total Current Funds .....	<u>\$ 8,409,891</u>	<u>\$ 7,342,442</u>
<b>ENDOWMENT AND SIMILAR FUNDS:</b>		
Cash .....	\$ 1,299,088	\$ 165,033
Notes receivable .....	95,316	96,663
Investments - at cost: (market value \$48,629,718; \$42,467,439 in 1971) .....	32,273,457	31,288,633
Loan to U.S. Treasury in perpetuity .....	1,000,000	1,000,000
Total Endowment and Similar Funds ..	<u>\$34,667,861</u>	<u>\$32,550,329</u>
<b>REAL ESTATE ACQUISITION FUNDS:</b>		
Real estate at cost or appraised value at date of gift (note 1) .....	\$ 2,326,956	\$ 2,176,219
Total Real Estate Acquisition Funds ..	<u>\$ 2,326,956</u>	<u>\$ 2,176,219</u>

See accompanying notes to financial statements.

# SMITHSONIAN INSTITUTION BALANCE SHEET OF PRIVATE FUNDS 30 JUNE 1972

(With comparative figures for 1971) (Note 1)

## *Liabilities and Fund Balances*

	1972	1971
<b>CURRENT FUNDS:</b>		
Notes payable (note 3) . . . . .	\$ 383,691	\$ 654,613
Accounts payable . . . . .	421,213	814,581
Accrued liabilities . . . . .	669,065	570,068
Deferred income:		
Magazine subscriptions . . . . .	1,931,311	1,400,926
Other . . . . .	<u>117,019</u>	<u>130,249</u>
Total Liabilities . . . . .	<u>3,522,299</u>	<u>3,570,437</u>
<b>Fund balances:</b>		
Unrestricted . . . . .	1,781,105	1,719,657
Restricted:		
Unexpended income from endowments . . . . .	550,580	651,889
Grants and Contracts . . . . .	50,001	290,741
Gifts . . . . .	<u>2,505,906</u>	<u>1,109,718</u>
Total Fund Balances . . . . .	<u>4,887,592</u>	<u>3,772,005</u>
Total Current Funds . . . . .	<u>\$ 8,409,891</u>	<u>\$ 7,342,442</u>
<b>ENDOWMENT AND SIMILAR FUNDS:</b>		
Fund balances:		
Endowment funds . . . . .	\$29,320,809	\$27,391,201
Funds functioning as endowments . . . . .	<u>5,347,052</u>	<u>5,159,128</u>
Total Endowment and Similar Funds . . . . .	<u>\$34,667,861</u>	<u>\$32,550,329</u>
<b>REAL ESTATE ACQUISITION FUNDS:</b>		
Mortgage notes payable (note 4) . . . . .	\$ 353,138	\$ 293,641
Fund balance . . . . .	<u>1,973,818</u>	<u>1,882,578</u>
Total Real Estate Acquisition Funds . . . . .	<u>\$ 2,326,956</u>	<u>\$ 2,176,219</u>



# SMITHSONIAN INSTITUTION PRIVATE FUNDS

## Statement of Changes in Fund Balances Year ended 30 June 1972

### Current Funds

	Total	Unrestricted funds		Restricted funds		
		General	Activities	Income from endowments	Gifts	Grants and contracts
Balance at 30 June 1971 . . . .	\$ 3,772,005	\$1,719,657	\$ -	\$ 651,889	\$1,109,718	\$ 290,761
Additions:						
Net sales . . . . .	7,157,260	831,190	6,195,741	111,474	18,855	-
Less: cost of goods sold . . . .	4,837,761	812,401	3,998,872	26,488	-	-
Gross profit . . . . .	2,319,499	18,789	2,196,869	84,986	18,855	-
Grants and contracts - Net . . .	7,847,612	-	-	-	-	7,847,612
Investment income . . . . .	1,512,396	334,055	-	1,145,245	33,096	-
Gifts, bequests and foundation grants . . . . .	2,789,036	25,591	145,357	11,094	2,606,994	-
Rental and commission . . . . .	170,562	170,562	-	-	-	-
Other . . . . .	395,377	49,178	103,981	2,640	239,578	-
Total additions . . . . .	\$15,034,482	598,175	2,446,207	1,243,965	2,898,523	7,847,612
Deductions:						
Salary and benefits . . . . .	8,952,275	2,413,352	1,505,521	514,005	960,308	3,559,089
Purchases for collection . . . .	209,465	523	-	154,037	54,287	6,625
Travel and transportation . . .	834,418	76,114	52,384	31,838	151,229	522,853
Equipment and facilities . . .	638,087	138,154	45,981	30,508	96,049	327,395
Supplies and materials . . . .	730,206	81,171	93,267	30,076	181,937	343,752
Rent and utilities . . . . .	103,806	44,954	6,315	-	15,966	36,531
Communications . . . . .	139,593	67,361	14,698	558	13,759	43,227
Contractual services . . . . .	3,063,447	142,116	399,983	285,809	925,288	1,310,251
Computer rental . . . . .	41,038	32,729	-	-	8,309	-
Promotion and advertising . .	67,429	-	67,429	-	-	-
Depreciation . . . . .	22,244	-	22,244	-	-	-
Administrative expenditures applied . . . . .	(167,090)	(2,638,646)	379,737	87,083	214,399	1,790,303
Total deductions . . . . .	\$14,634,918	357,828	2,587,559	1,133,914	2,621,531	7,934,000
Transfers . . . . .	716,023	(178,899)	141,352	(211,360)	1,119,196	(154,212)
Net increase (decrease) in fund balances . . . . .	1,115,587	61,448	-	(101,309)	1,396,188	(240,709)
Balance at 30 June 1972 . . . . .	\$ 4,887,592	\$1,781,105	\$ -	\$ 550,580	\$2,505,906	\$ 50,000

# SMITHSONIAN INSTITUTION PRIVATE FUNDS

## Statement of Changes in Fund Balances Year ended 30 June 1972

### *Endowment and Similar Funds*

	<i>Total</i>	<i>Endowment funds</i>			<i>Funds functioning as endowments</i>
		<i>Total</i>	<i>Freer</i>	<i>Other</i>	
Fund balances at 30 June 1971 as previously reported . . . . .	\$32,550,329	\$27,495,256	\$13,328,493	\$14,166,763	\$5,055,073
To correct error in classification of Smithsonian Agency Acct. . . . .	-	(104,055)	-	(104,055)	104,055
Fund balances at 30 June 1971 as adjusted . . . . .	32,550,329	27,391,201	13,328,493	14,062,708	5,159,128
Additions:					
Gifts and Bequests . . . . .	43,830	38,069	-	38,069	5,761
Net Gain (Loss) on Sale of investments . . . . .	2,880,965	2,723,293	2,118,628	604,665	157,672
Income added to principal . . . . .	95,178	91,740	-	91,740	3,438
Transfer from Current Funds—Smithsonian Agency Acct. . . . .	21,053	-	-	-	21,053
Total Additions . . . . .	3,041,026	2,853,102	2,118,628	734,474	187,924
Deductions:					
Transfer to Current Funds . . . . .	923,494	923,494	-	923,494	-
Fund balances at 30 June 1972 . . . . .	<u>\$34,667,861</u>	<u>\$29,320,809</u>	<u>\$15,447,121</u>	<u>\$13,873,688</u>	<u>\$5,347,052</u>

### *Real Estate Acquisition Fund*

Fund balance at 30 June 1971 . . . . .	\$1,882,578
Additions:	
Land Acquisition - Chesapeake Bay Center Property . . . . .	280,503
Deductions:	
Land sales	
Ft. Pierce, Fla. . . . .	\$181,011
Chesapeake Bay Center . . . . .	8,252
Fund balance at 30 June 1972 . . . . .	<u>\$1,973,818</u>

## SMITHSONIAN INSTITUTION PRIVATE FUNDS

### Notes to Financial Statements

30 June 1972

1. *Accounting Principles.*—The institution follows the accrual method of accounting except that accrued vacation pay has not been reflected on the accompanying financial statements.

Fixed assets are recorded as follows:

Museum shops and computer equipment: Those purchased from private funds are capitalized in the current fund.

Land and buildings: Those acquired by gift or by use of gift funds are recorded in the real estate acquisition fund at cost or appraised value at date of gift, except for gifts of certain islands in the Chesapeake Bay and the Carnegie Mansion which have been recorded at nominal values.

All other land, buildings, furniture, equipment, works of art, living or other specimens are not reflected in the accompanying financial statements.

Museum Shops and computer equipment are depreciated on a straight line basis over an estimated useful life of five years. In accordance with generally accepted accounting principles for non-profit organizations, depreciation is not provided on non-income producing assets.

2. *Deferred Magazine Expenses.*—This amount represents promotional expenses incurred in connection with the *Smithsonian* magazine. These expenses are to be amortized over a period of twelve months.

3. *Note Payable.*—The note payable in the principal amount of \$383,691 is secured by computer equipment and is payable in monthly installments of \$7,993 to 30 June 1976.

4. *Mortgage Notes Payable.*—The mortgage notes payable are secured by first deeds of trust on property acquired in connection with the Chesapeake Bay Center. Funds for the curtailment of these notes will be transferred from restricted funds—gifts, designated for the development of the Chesapeake Bay Center. The details of the mortgage notes payable are as follows:

- a. A \$226,100 note on property acquired for \$376,000. The note is payable in nineteen consecutive semi-annual installments of \$13,300, plus interest at the prevailing prime rate on the due date of payment but not less than 8% with the final payment due 1 July 1980.
- b. A \$37,038 note on property acquired for \$118,533. The note is payable in monthly installments of \$451, including interest at the rate of 6%, with the final payment due on 1 November 1989.
- c. A \$90,000 note on property acquired for \$120,000. The note is payable in three consecutive annual installments of \$30,000, plus interest at the rate of 7 percent on the unpaid balance, with the final payment due 1 November 1974.

5. *Real Estate Acquisition Funds.*—The real estate acquisition funds include certain land and buildings acquired by gift or purchased from restricted funds. This property is currently being used for museums, the Chesapeake Bay Center and a conference center. Previously this property was included as part of the endowment and similar funds. The prior year's financial statements have been reclassified to reflect this change.



## SCIENCE

Science at the Smithsonian has been free of many of the constraints to which large government agencies are subject. The benefit accruing from this freedom has resulted in the innovative and often unconventional research that follows in the reports of the bureaus.

It is worth noting that when the Astronomy Survey Committee of the National Academy of Sciences and the National Research Council published its independently formulated standard entitled *Astronomy and Astrophysics in the 1970's* the Smithsonian Astrophysical Observatory could already show substantial progress on its own towards every one of the Committee's recommendations. One of the most dramatic innovations by SAO during the year has been the start of construction of a multiple-mirror telescope (MMT) in cooperation with the University of Arizona. Although not a new concept, this is the first time the multiple-mirror technique has been attempted on a telescope of this size. When finished it will be the third largest optical telescope in the world. The MMT, when completed, will be capable of performance hitherto only equaled by conventional instruments of larger size and costing several million dollars more.

Exhibit plans are moving rapidly ahead for the new Air and Space Museum, which, pending Congressional approval, is scheduled to open in 1976. Construction of Washington's first planetarium is well advanced, and the prototype of a highly imaginative spacearium is being constructed, which will allow the audience to "travel" into space and look back at the earth and our solar system. With cooperation from the Smithsonian Astrophysical Observatory the proposed exhibits will afford the lay visitor new perspectives of our universe and a greater knowledge of some of the exciting discoveries and theories of astrophysics.

Substantial progress has been made in the interbureau research of the Environmental Science Program. The first research results of this long-term project will soon be published on the Zoo's study of two species of sloth at Barro Colorado Island. The results of monitoring biological and physical fluctuations on this island are now being submitted to computer analysis and parallel monitoring is underway at the Chesapeake Bay Center for Environmental Studies.

An important step in multidisciplinary and multi-institutional research on the Chesapeake Bay was achieved in December by the formation of the Chesapeake Research Consortium, Inc. As a Consortium member, the Smithsonian received a grant from the National Science Foundation's RANN (Research Applied to National Needs) Program for work at the

Chesapeake Bay Center for Environmental Studies. Scientists from the University of Maryland, the Johns Hopkins University, and the United States Geological Survey are using our facilities there in a highly integrated fashion. The Rhode River estuary is particularly valuable in this bay-wide study because it is one of the very few relatively unstressed areas less than an hour from Washington and Baltimore.

This year also marks the inauguration of the Fort Pierce Bureau of the Smithsonian, in Florida, where a broad research plan in marine science is getting underway.

Finally, recognition should be given to the continuous and positive role which the science bureaus of the Smithsonian have assumed throughout the past year in matters of national and international concern. Smithsonian scientists have provided representatives and advisory services to the Council on Environmental Quality (CEQ), to the U.S. delegation to the International Whaling Commission, to the U.S. delegation to the Stockholm Conference on the Environment, and to the federal agencies interested in the environmental effects of sea-level canal construction in Panama. Smithsonian scientists have also collaborated with foreign governments on every continent on environmental projects for which they needed technical assistance, and a joint Smithsonian Institution-Peace Corps recruitment effort has also made scientific technicians available to many developing countries.

Details of these and other science bureau accomplishments in fiscal year 1972 follow.

### National Museum of Natural History

This was a year marked by encouraging progress in a number of areas, progress made possible by substantial new fiscal support from the Congress.

In addition to several new scientists, the Museum was able to employ a considerable number of support personnel—clerks and typists, museum aides, and technicians. As a consequence, an excellent start was made toward the Museum's long-sought goal of providing an average of two such support people for each researcher. Results are evident in a greater number of publications of the interpretive type, as well as greater involvement in leadership activities that contribute to the advancement of the natural sciences nationally and internationally. New multidisciplinary field studies were initiated which, when added to ongoing projects and broad floristic and faunistic survey programs, have provided significantly increased opportunities for the staff to work in the field with living organisms in their natural habitats.



Major accomplishments also have been made in the application of electronic data-processing (EDP) and information retrieval to the management of collections. It is becoming increasingly evident that the care of such data is, in its own way, as important as care for the specimens themselves. The objectives are to capture, store, and retrieve collection-based information more efficiently than by conventional means and to produce ultimately a versatile, easily searchable data base that will be more responsive to scientific inquiry than are current records in most of the departments. Top priority is given to projects designed to capture data from all incoming collections. The capture of data on specimens already in the collections occupies the second priority, and about 25 such projects are underway. Application of computer technology to research projects of the staff of the Museum, a third priority, began this year and will be expanded in the future. In close cooperation with the Museum's EDP program, a research team consisting of USDA and Smithsonian entomologists is collecting and collating all the available data on entomological systematics in machine-readable form. The primary purpose of the project is to use the resulting magnetic-taped data base to publish a current catalog and simultaneously to provide the means by which it can be continuously updated. In addition, such a data bank can be queried by agriculturists, entomologists, and even by the public indirectly without demands on the time of our Museum staff.

## RESEARCH

Early man and animals of the New World were intimately related ecologically in an environment characterized by climatological extremes. While there have been many attempts to interpret one or another sector of this vast area, a new, multidisciplinary program was initiated this year aimed at a clearer understanding of man's early history as a hunter of Pleistocene fauna from Alaska to Patagonia. An archeologist specializing in Paleoindian studies was employed and projects were inaugurated in the Brooks Range of Alaska, Nebraska, the Texas Panhandle, east-central New Mexico, eastern Rio Grande do Sul, Brazil, and in four geographical zones of Coastal Chile. It is anticipated that the program will involve—in addition to anthropologists—geomorphologists, palynologists, and paleontologists.

The National Herbarium has long been recognized as one of the most important centers for studies of neotropical plants. The truth of that observation was again emphasized by the volume of monographic, revisionary, and floristic research published or largely completed this year. Now palynology in the Museum has been initiated by the employment of a specialist whose first responsibility was to plan the new laboratory and begin to obtain the necessary equipment.



Lichens have long held a place of special interest to botanists because of the algae-fungus symbiosis involved. The use of phytochemistry is well established as a means of classifying lichens but the Scanning Electron Microscope (SEM) has now opened the way for new understandings of



SEM photograph of a cross-section of the cortical layer of a foliose lichen (*Parmelia croceopustulata* Kurok.) showing the thin polysaccharide epicortical layer and a pore that provides for gas exchange to the algal layer below. Magnified X 3000.

their microstructure. Working with members of a major family of foliose lichens, the SEM has been used to reveal for the first time the complexities of the structure of the cortical layer, most importantly in three dimensions. It is particularly interesting that pores below the resolution of light microscopy were found. These function in much the same manner as the stomates of flowering plants, except they do not open and close, to permit gaseous exchange between the inner (algal) cells and the external physical environment. Not only do these findings provide new characteristics for systematic investigations but they may stimulate research on ecological physiology of lichens.

Bees were also the subject of an economically important study that is continuing. Those bees responsible for pollination of squashes, gourds, and pumpkins are being introduced under carefully controlled experimental conditions into areas where these plants are cultivated but where their natural pollinators are absent. Releases of bees were made in Hawaii and observations are underway to determine whether or not they become established and, if so, whether the yields of these crop plants are increased as anticipated. Positive results could be of major importance to some of the developing nations where these crops are being introduced to improve the local food supply.

Similarly, the study of burrowing sponges, which form large cavities in coral heads and contribute to the destruction of coral reefs is of primary importance. Through use of the Scanning Electron Microscope and through stimulation of burrowing activity in pieces of Iceland Spar (calcite), it was possible to study burrowing activity in hard substrates. Continuing investigations are aimed at determining the mechanisms by which sponges dissolve hard substrates. This and other studies will be greatly facilitated by an electron microscope, obtained and installed in cooperation with the Registry of Tumors in Lower Animals, which is housed in the Museum.

Under laboratory conditions, it was determined that an ostracod species of *Cypretta* is an effective predator of *Biomphalaria glabrata*, a vector snail of the blood fluke that causes the serious tropical disease schistosomiasis. Such ostracods may prove to be useful in biological control of schistosomiasis in areas such as Vietnam and tropical Africa.

Lunar studies in recent years have often been directed to exploration of the chemical and structural nature of moon rocks and dust. However, investigations of lunar "geomorphology" have also stimulated re-evaluations of some earth structures similar in appearance to those on the moon. Staff members spent several weeks in South and Southwest Africa, Lonar Lake in India, and Henbury and Gosse's Bluff in Central Australia examining enigmatic geological structures in each location for evidence of meteorite impact. In addition, extensive investigations were carried out of





Squash bees have been introduced in Hawaii experimentally in an attempt to establish populations of these natural pollinators of cultivated cucurbits.





Topographic mapping and gravity survey across Rotor Kamm, a possible meteorite impact crater 8,000 feet in diameter and 400 feet deep located in the restricted diamond area along the west coast of South West Africa.

the active volcanoes Arenal in Costa Rica, Soufriere on the Carribean island of St. Vincent, and Fernandina in the Galapagos Islands.

In recent years, the interrelated subjects of sea-floor spreading, plate tectonics, and continental drift have received attention primarily by the petrologists in the Museum. Important paleobiological data can now also

be reported that complement and support the physical data. A pilot study has been conducted of the evolutionary responses to the constant movements of the earth's crustal plates. This consisted of an investigation of the history of biological relationships among mollusks across the Temperate and Tropical Atlantic Ocean throughout the 200-million-year history of its formation and subsequent opening to its present configuration. Initial results clearly show increasing endemism of molluscan faunas during the Mesozoic and Early Cenozoic on either side of the Atlantic as it opened, as well as a close correlation of major evolutionary and sedimentary events with periods of active plate movement. Periods of active crustal movement appear to be correlated with continental flooding, while draining of continents accompanied inactive periods of crustal movement. Rates of molluscan evolution, documented by studying numerous lineages within a framework of absolute geological time constructed from radiometric dating, appear to be closely related to tectonic-sedimentary events.

A long-term functional anatomical study of a hundred species of shore birds was completed, dealing primarily with kinesis of the upper jaw, as well as the proportion and angular relationships of the skull. Skull features not previously studied were compared, using X-rays, with the conclusion that general adaptive patterns in these respects corresponded well with accepted taxonomic groupings.

As is usually the case, studies of fishes of many groups using the full panoply of taxonomic characteristics, was an important contribution to the total research of the Museum. A paper on nearly 200 interspecific and intergeneric hybrids of chubs concluded that such hybridization results from temporal, spatial, or ethological isolation during the breeding season. Also completed was a comprehensive summary and analysis of host relationships in the sharksuckers that demonstrated host specificity in some species, including one that attaches only to certain species of marine mammals. In addition, the Ocean Acre project, an intensive study of the ecology of the midwater fauna of a selected water column near Bermuda, produced reports on the vertical distribution and ecology of the lanternfishes and the bristlemouth fishes.

#### COLLECTIONS

Two ultimate truths concerning natural history collections were repeatedly emphasized by events of the year: Samples of the natural world, already viewed as indispensable documentation of the components of the global ecosystem, are increasingly seen as a national resource in the study of environmental and pollution problems, as well as for more conventional uses. However, there is no single, more serious, all-pervading

problem for the National Museum of Natural History than the production of a long-range solution to the problem of adequate space for the National Collections.

Conservation of collections, always important, was advanced in this year by several activities. A major collection of Samurai Arms and Armor for the first time was cleaned and stored in proper cases and on special racks. An expert Japanese sword polisher from Tokyo spent six months in the Anthropology Processing Laboratory examining, evaluating, and conserving the 180 Japanese Samurai swords in the collection. It was



Terutoyo Fujimoto, expert Japanese sword polisher, conserving one of the historically important Samurai swords from anthropological collections to preserve the finish and to expose temper lines.



discovered that some were extremely significant pieces and certification papers will be issued by the Japanese authorities.

Growth in holdings of vertebrate animal specimens, as well as the care of those already in hand, continued to pose space-use problems, as well as research opportunities. Whale, porpoise, and other marine mammal materials, presently in warehouse storage, were prepared for return to the Museum where they will occupy an entire exhibit hall made available for this purpose because of great national interest in these animals. This marks the initiation of a research/curatorial program on marine mammals in collaboration with the International Biological Program studies of marine productivity, involving the Departments of Vertebrate Zoology and Paleobiology, which house the fossil marine materials.

In addition to collections management, EDP applications have other very real values. For example, associated data on mammals and their ectoparasites in the system will permit the generation of a variety of summaries, correlations, and analyses of great potential value in epidemiological and ecological programs underway in many institutions. A quite different objective motivates the capture of data about and from the gem and mineral collections. In this instance, not only are the needs of research projects served, but an accurate inventory of these precious materials permits much improved security to be maintained.

During the fiscal year a National Synthetic Crystals Collection has been initiated which promises to be a significant adjunct to the present collections. In the first six months of its establishment almost a thousand specimens had been received, many of rare or unique materials.

## EXHIBITS

There has been a succession of outstanding temporary exhibits in the foyer area. An exhibit of the tools and implements of everyday life in a Korean village, another on life in Greenland, one on the history of U.S. Fisheries, and another on Japanese Swords and Armor are examples of these short-term highly popular presentations.

Perhaps the single effort most appreciated by the public was the Insect Zoo which opened for its second summer season in June, thanks to fiscal support from Alfred Elser, the Smithsonian Associates Ladies' Committee, and the Entomological Society of America. New features this year were an ant farm, butterfly flight cage, and television monitor closeups of a procession of insects too small to be seen easily without magnification. Although funds were available for much of the apparatus, a great deal of the time required for answering questions and giving brief explanations was contributed by a large number of young volunteers recruited and trained by the Museum staff.



Visitors watching a tarantula in the Natural History Museum's Insect Zoo, an experimental exhibit designed to teach biological principles using the behavior of live insects.

## National Air and Space Museum

Fiscal year 1972 marked the first year that the National Air and Space Museum operated under the leadership of its new Director, Michael Collins. Major emphasis has been placed on detailed preparation for a new museum to be opened in the Bicentennial year. The architectural firm of Hellmuth, Obata, & Kassabaum, Inc., designed the new National Air and Space Museum Building. The building design has been approved by the Fine Arts Commission and the National Capital Planning Commission.

Two major exhibits were opened during the year. The first, *Ballooning*, combined a variety of audiovisual techniques new to the Air and Space Museum. The exhibit contains such things as an automated puppet show, which describes the first balloon crossing of the English Channel; a hot air balloon that rises to the ceiling and returns to the floor when the air cools; continuous playing of balloon music; and hundreds of artifacts ranging from the first air mail letter to furniture designed with a balloon motif.

The second exhibit, *World War I Fighters*, carries the audiovisual techniques to even greater dimensions. In this exhibit not only is there extensive use of sound, but in addition, a live mechanic works on the restoration of a Nieuport Fighter. This exhibit area has proved to be very popular for it allows the visitor to ask questions and receive immediate and accurate information about the aircraft of the World War I era.

A planetarium chamber on the Mall is fast becoming a reality. A 30-foot domed chamber, which will be housed in the Air and Space Building, is under construction. The dome is in place, the equipment is on



order, and a planetarium program is being prepared for opening in late December 1972. This planetarium will serve two purposes. First, it will be an entertainment and educational center. Not only will shows be given to the general public on a regularly scheduled basis, but in addition, educational programs will be developed for classes at primary and secondary educational levels. Schools in the Washington area will have the opportunity to send full classes to the planetarium for astronomy lectures and shows. Secondly, the planetarium will serve as a laboratory for the experimentation and design of programs and equipment which will be used in the Spacearium to be built in the new NASM Building.

Not only is the Museum adding to the collections, approximately 120,000 pounds of material was added during the fiscal year, but, more significantly, a program was initiated to purge items which have little or no historical significance. Pursuant to this program, over 35,000 pounds of material were removed from the NASM collections.

Restoration work continued during the year on the Douglas World Cruiser, the Nieuport Type 83E-2, and the Curtiss XFC9-2. It is planned to exhibit these aircraft in the new NASM Building.

Miss Catherine Scott was assigned as branch librarian by the Smithsonian Library and has begun the task of reorganizing the NASM library. Interlibrary loan cooperation procedures have been established with other libraries in the Washington, D.C., area. Work has begun on weeding out insignificant and duplicate material. Circulation records are being reorganized and an appraisal is being made of the catalog file in line with the Union catalog holdings in the main library. All of this is being accomplished to bring the NASM library up to the standards of the other Institution libraries.

### Smithsonian Astrophysical Observatory

Publication of *Astronomy and Astrophysics in the 1970's* (Astronomy Survey Committee of the National Academy of Sciences and the National Research Council, April 1972) gave an independently formulated standard against which to measure progress and plans of the Smithsonian Astrophysical Observatory (SAO). A comprehensive assessment, begun this year, of the implications for SAO of the Committee recommendations will be completed during fiscal year 1973. Meanwhile, however, the concordance between these recommendations and SAO activities is so striking in most areas that this situation is already reflected in the Observatory's report for this year.

The Survey Committee defines, in order of importance, four national programs of highest priority. The first concerns radio astronomy; it



recommends construction of a very large array (VLA) radio-telescope facility and increased support of smaller radio programs. While SAO scientists have no intimate role in present plans for the VLA, they would surely be among the users of such a facility.

The second part of the recommendation is another recognition of the same compelling scientific facts that led SAO to initiate a joint radio-astronomy program with Harvard University some years ago and diligently to build that program in the intervening years. During the past year, joint research by a Smithsonian-Harvard team continued on several excited states of methyl alcohol, and, for the first time, interstellar acetaldehyde was detected. Parallel laboratory studies gave precise rest frequencies for the formamide molecule, recently detected by this group in the interstellar medium, and further spectroscopic data on isotopic hydroxyl molecules. Measurements were made of the far-infrared spectra and chemical properties of an unidentified oxygen-hydrogen radical produced in the reaction of oxygen atoms with unsaturated hydrocarbons.

The most recent addition to this program—very long-baseline interferometry (VLBI)—is specified in the recommendations as one of the areas deserving increased support. Four VLBI experiments were undertaken between July 1971 and June 1972 in cooperation with Massachusetts Institute of Technology, Naval Research Laboratory, and California Institute of Technology. All the experiments involved observations of galactic spectral line sources, including the  $2\pi 3/2, J=3/2$  and  $2\pi 1/2, J=5/2$  transition of OH and the  $6_{16} \rightarrow 5_{23}$  transition of H<sub>2</sub>O.

As its second highest priority, the Committee recommends an optical program that will greatly increase the efficiency of existing telescopes by means of modern electronic auxiliaries and at the same time design and construct the new large telescopes necessary for research to the limits of the known universe.

SAO has, for some time, been pushing the development of modern electronic auxiliaries for use primarily on its 60-inch telescope, but also on other telescopes such as those at Boyden Observatory in South Africa and the new Wise Observatory in Israel. Examples of such instrumentation employed by SAO scientists include the PEPSIOS spectrometer, the Fourier-transform spectrometer, and a Kron electronographic image tube. With such instrumentation, the SAO 60-inch telescope on Mt. Hopkins has in fact been making observations that earlier could have been done only on a much larger telescope.

For example, high-resolution spectroscopic measurements of planetary absorption lines have been made with a three-etalon Fabry-Perot interferometer at Mt. Hopkins. The investigators detected, for the first time, the presence of molecular oxygen in the atmosphere of Mars and also established the existence of a layered cloud structure in the atmosphere of

Venus. They made some measurements of interstellar absorption lines that gave the rotational temperature of interstellar CN molecules, which may show remaining effects of a "big bang" origin of our present universe.

The Smithsonian participated in several ways in the founding of the new Florence and George C. Wise Observatory in Israel. This observatory was dedicated on 26 October, 1971. The Institution provided exchange currency for acquisition and operation of some peripheral equipment, and an SAO scientist is coordinating joint research activities of American and Israeli astronomers. The major instrument at the new observatory on the Negev High Plateau is a 40-inch reflector-type telescope.

The Multiple-Mirror Telescope (MMT) project of SAO and the University of Arizona is a principal element in the activity that the Committee envisions as leading to new large telescopes. Design of the MMT progressed as scheduled during the year, and SAO gave a contract to an industrial firm for fabrication of the mount. Mt. Hopkins was chosen as the MMT site. Measurement of light pollution and radio noise established that the sky there is significantly better for astronomical observations than is the sky over Mt. Lemmon north of Tucson, the other site considered.

The third recommendation of the Survey Committee asks for a significant increase in support of infrared astronomy, including construction of a large ground-based infrared telescope, a high-altitude balloon survey, and design studies for a very large stratospheric telescope.

Some few years ago, SAO placed particular emphasis on strengthening its infrared astronomy program. Activities have included the fabrication of refined infrared detectors, adaptation of the Boyden 60-inch telescope for infrared observations, and initiation of a project to put on the peak of Mt. Hopkins a 48-inch telescope for infrared observations. Of course, SAO's greatest activity in this area is the MMT, which will be the world's largest telescope optimized for infrared.

Furthermore, a joint project is underway among SAO, Harvard College Observatory, and the University of Arizona to design and build a 40-inch telescope for infrared observations from a balloon gondola. The first flights of the telescope will take place during calendar 1972. This infrared balloon project is a substantial first step toward the large stratospheric telescope recommended in the Committee report.

A program for X-ray and gamma-ray astronomy from a series of large orbiting High-Energy Astrophysical Observatories (HEAO), supported by construction of ground-based optical and infrared telescopes, is the fourth Survey Committee recommendation.

SAO scientists are not involved in the development of the HEAO now authorized, but they have had experience with satellite-borne gamma-ray astronomy. SAO also has been very active during the last few years in balloon flights for gamma-ray astronomy. Early this year, two successful



balloon flights of SAO's 10-Mev gas-Čerenkov detector were made from Parana, Argentina. Both gave indications that the suspected 10-Mev gamma-ray source at the galactic center was indeed there. Another gamma-ray source, Sgr  $\gamma$ -1, reported at higher energies, also yielded an excess flux of gamma rays, although at a lower level of confidence.

The first observations of extremely high-energy gamma rays from the pulsar in the Crab Nebula have been made by SAO scientists using two different techniques. In the first, pulsed gamma rays were detected by means of paired searchlight reflectors at Mt. Hopkins. These observations confirm an earlier SAO experiment when a suspected pulsed flux of gamma rays was detected. A second set of results was based on observations with the 10-meter optical reflector, also at Mt. Hopkins. Scientists detected a continuous flux from the Crab Nebula; the flux varied slowly with time, the largest emissions occurring 60 to 120 days after a major frequency change of the pulsar.

The Survey Committee identifies several additional programs of "highest scientific importance," but agrees that funding of them, although urgent, should not be allowed to delay the funding of the first four recommendations. SAO is engaged in activities relating to these additional programs.

The Committee proposed construction of a large millimeter-wavelength antenna to study quasars and complex interstellar molecules. SAO has already initiated a program in millimeter-wave astronomy. One phase of it is a joint project with Harvard College Observatory, the University of Texas, and Bell Laboratories that has fielded in Texas an extraordinarily precise telescope equipped with recently developed millimeter-wave detectors.

Continuation of the program of Orbiting Solar Observatories (OSO) is urged by the Committee. SAO scientists will participate in the currently authorized OSO-I of the University of Colorado and OSO-J of Harvard College Observatory. Meanwhile, from data taken by OSO 4 and 6, SAO scientists have produced a new model of the solar chromosphere and made basic contributions to understanding of the high-temperature structure of solar flares, active regions, and prominences.

Another recommendation is a sizable increase in support of theoretical investigations, including numerical computations. SAO is a recognized world leader in the use of computers to generate theoretical models of stellar atmospheres. This year, it cosponsored with NASA an international symposium on such models. Also, Observatory scientists continue to improve and refine PANDORA, the largest and most powerful computer program yet designed for model stellar atmospheres and radiative line transfer. Already the program is being used by a number of research groups outside the Smithsonian.



The Committee proposes an expanded program of ultraviolet astronomy from space, culminating in the launch of a large space telescope by the end of this decade.

SAO's Project Telescope to record stars in the ultraviolet was, of course, one of the two experiments onboard NASA's Orbiting Astronomical Observatory (OAO 2). This year, as a major achievement of that project, SAO issued the first catalog of stars as they appear in the ultraviolet. It is based on more than 6000 television pictures taken by Telescope. The initial version in the form of magnetic tape has been deposited in the National Space Sciences Data Center at NASA's Goddard Space Flight Center. An extended tape and printed version based on all Telescope data is now being prepared.

The catalog lists the magnitudes of the stars observed in Telescope's four ultraviolet bands, as well as the standard deviations of the magnitudes, and the positions and identifications of the stars. It also gives the magnitudes, colors, and spectral types of these same stars as observed by ground-based telescopes. The data will be of particular value to theoreticians constructing models of hot rapidly evolving stars, which seem to emit most of their light in the ultraviolet.

The large, steerable radio telescope recommended by the Committee is, in most respects, identical to the radio instrument described in the design study funded by NSF. This study, in which SAO participated, is the most detailed plan in existence for such an instrument.

As a contribution to the Committee's final recommendation that improved astrometric measurements be undertaken, the Observatory coordinated a 14-month Earth-Physics Satellite Observation Campaign (EPSOC) to measure the Chandler Wobble, a major component in the geophysical phenomenon known as "polar motion." Meanwhile, the earth-physics group at SAO is generating a new Standard Earth, the third the Observatory has produced as a major result of its satellite-tracking program.

The Observatory, of course, pursues other important research outside the scope of the Astronomical Survey Committee. This year, three groups of scientists continued to analyze lunar samples; a new and definitive guide to cometary orbits was issued at SAO; analysis of the orbit of the asteroid Pallas led to the concept that the asteroid belt is a cosmic museum of unused building blocks for Mars and Earth, of uncompleted planets, and of senile comets; first returns from a retroreflector on the moon were obtained by the SAO laser at Agassiz Station; precise geodetic measurements across the great African rift valley in Ethiopia surprisingly suggested longitudinal extension rather than widening of the rift; and a program of environmental monitoring was initiated at Mt. Hopkins.

## Smithsonian Tropical Research Institute

Fiscal year 1972 was a period of quiet consolidation and transition for STRI. Programs planned or begun earlier were pursued with encouraging success. Preparations were made for anticipated developments in the future.

As always, considerable emphasis was placed on basic research. The scientific staff was enlarged by several recruits and supplemented by new pre- and postdoctoral fellows and research associates. This has made it possible to investigate the ecology and/or behavior of a really substantial variety of organisms. The "in house" research of the bureau (work receiving direct financial support) included studies of primates, bats, edentates, passerine birds, cuckoos, lizards, sea-snakes, frogs, both freshwater and marine fishes, spiders, several kinds of insects (Hymenoptera, Orthoptera, Lepidoptera), squid, shrimp, corals, gorgonians, zooanthids, echinoids, crinoids, other less conspicuous marine invertebrates, orchids, forest trees, and marine algae.

Most of this work was done in the neotropics, in and around the Isthmus of Panama, the northern part of South America, and the West Indies; but new comparative studies were also launched in the Old World (including such countries as Liberia, Gabon, and Kenya where the bureau has not been active before).

The gradual increase of personnel has permitted extension of research to whole communities, as well as to individual groups and areas. Special attention is being paid to the measurement and prediction of fluctuations in humid tropical forest (part of the general Smithsonian Environmental Sciences Program) and in coral reef and inshore marine habitats (with support from both the Environmental Sciences Program and the Environmental Protection Agency). Preliminary work on tropical grassland biomes has begun. Further studies will be developed in collaboration with experts of the Institute of Ecology of the Polish National Academy of Sciences.

The following examples illustrate the sorts of problems that have been judged to be accessible and relevant, and the level of refinement attained in STRI's research.

Research on corals has been a major focus of effort. J. Lang of the staff, who is working in Jamaica, has for the first time measured interspecific aggressive behavior and the establishment of dominance hierarchies in competition for space (and presumably ultimately food) among major species of scleractinian hermatypes in the Caribbean. She is also studying such subjects as deep reef communities, intraspecific polymorphism and speciation in reef corals, the effects of depth upon skeletogenesis, and budding forms of asexual reproduction in scleractinians.



J. Porter, one of the predoctoral fellows, has been experimenting with coral feeding and zooplankton energy flow over the reefs of the San Blas Islands, and has completed surveys of coral diversity and biomass abundance as well as the physical oceanography and sedimentation regimes of several reef sites.

P. Glynn of the staff, with his colleagues, has documented the occurrence of true structural reefs on eastern Pacific shores—another first record. Evidence from  $C^{14}$  dating and the growth of the principal frame-building corals indicates that these reefs are among the fastest-growing known. They are increasing at the rate of M/250 yrs, despite attrition by predators of about one-third of the annual production.

Analysis of reefs and environments around the Pearl Islands reveals that the low temperature conditions accompanying seasonal upwelling are deleterious to corals along the exposed western coasts. Thermal stress slows or impedes growth by rendering the corals more susceptible to invasions by other benthic organisms.

Sections of coral heads cut along the growth axis and viewed under UV light show chlorophyll rings which appear to represent annual growth increments. An attempt is being made to determine the relationship between size of rings and intensity of upwelling. Hopefully, this should provide information on past marine climatic fluctuations.

C. Birkeland and D. Meyer, research associates, obtained transect data on the depth distribution of reef corals at the isolated island of Malpelo off the northwestern coast of South America. They found that hermatypic corals were a dominant benthic element as far down as 37 meters below the surface of the waters.

Further work on the Caribbean shore of Panama has disclosed drowned reefs on the shelf off Nombre de Dios, an actively accreting algal ridge structure on the Holandés reef, and an emergent fossil coral assemblage, possibly of Sangamon age, on the same reef.

STRI's participation in the Environmental Sciences Program, primarily concerned with problems of unpredictability and instability (which may be larger in the tropics than has usually been supposed), has both terrestrial and marine components. The monitoring of biological and physical fluctuations in the forest on Barro Colorado, which was begun last year, is proceeding at full speed. The data are now being submitted to computer analysis. The parallel studies of inshore organisms and habitats started later, and only became fully operational in the first half of fiscal year 1972, with the installation of continuously recording instruments on the reef flat adjacent to the marine laboratory at Galeta. The parameters being measured include salinity, water temperature, water depth, exposure,  $O_2$  concentration, light penetration, rainfall, air temperature, wind speed, wind direction, and the growth rates, reproductive cycles, abundance,





The algal ridge off Morotupo, Islas San Blas on the Atlantic side of Panama.

mortality, and productivity of selected species of animals that seem to be particularly dominant or important to the system. It has already become clear that periods of stress in the intertidal area are totally unpredictable on the basis of conventional tide tables and information derived from offshore waters.

In addition to the "in house" research, STRI has continued to provide facilities for, and help to, visiting scientists and students from universities and other institutions all over the world. The number of visitors and their use of the bureau's laboratories, equipment and reserves in fiscal year 1972 remained at much the same level as in the two preceding years, especially noteworthy in view of the general and widely publicized reduction of effective research funds in so many of the countries from which visitors come. The demand for bureau help to outsiders in this sphere would appear to have reached temporary equilibrium. The rate of demand may be less than would be desirable, but it is still appreciable. It is bound to go up in the future, although the timing remains uncertain.

The most promising new educational activity was a cooperative program with the University of Panama. The students and staff of the university are now using the STRI research vessel *Tethys* on a regular basis for studies along the Pacific coast and adjacent islands.

The various changes, additions, and improvements in fiscal year 1972 were not spectacular in themselves, but they should all contribute to the



Installation of Weather Station for Environmental Science Project at Galeta Island, Atlantic coast Panama.



New laboratory building on Naos Island, Ft. Amador.

ultimate goal of developing a multicultural international institute with competence in all the important aspects of field biology and related disciplines.



## Radiation Biology Laboratory

### REGULATORY BIOLOGY

Light signals in the environment regulate the growth and development of plants. These light signals are absorbed by pigments which in turn change the metabolism and life functions of cells. One of the pigments known to be involved in this process is phytochrome, a plant pigment which strongly absorbs red or far red light. Phytochrome, a water soluble protein with a molecular weight of more than 50,000, has been isolated for several years in the Radiation Biology Laboratory and its properties studied extensively at the molecular level. Recently, evidence has accumulated that sulfhydryl reagents which were present in the extraction solutions may have altered its properties. This year a method has been developed for isolating and purifying phytochrome without sulfhydryl reagents. This phytochrome is more stable in the presence of proteolytic enzymes and at low pH. It has an isoelectric pH of 7.5 to 8 and we believe has properties which approximate more closely the properties of "native" phytochrome *in vivo* than previously isolated phytochrome.

In addition, two significant findings have been made in the study of the mechanism of phytochrome-mediated growth responses of oat and wheat coleoptile cells to red light: (1) The light-induced effects are independent of growth responses to exogenous auxins or gibberellins, as though there are two separate growth mechanisms in the cell. (2) The light-induced effects appear to be related to microtubule formation, since they can be specifically prevented by substances such as colchicine, urea, and cupric ions, which are known to interfere with aggregation of microtubule subunits.

The control of the molecular processes required for the synthesis of chloroplast proteins is not understood. Regulation may be under either cytoplasmic, nuclear, or chloroplast control or some complex interaction between all three. Attempts to map precisely this control system have continued using the alga, *Chlamydomonas reinhardtii*, in which the synthesis of proteins of chloroplast ribosomes and their properties have been measured.

Two lines of evidence suggest that most of the proteins of chloroplast ribosomes (70S) are made in the cytoplasm on 80S ribosomes. Chloramphenicol, an inhibitor of protein synthesis, fails to inhibit the synthesis of the protein component of chloroplast ribosomes. In addition, when cells are labeled for short times (15 seconds) with radioactive amino acids, a product-precursor relationship can be demonstrated between radioactivity in newly formed "nascent" protein on 80S cytoplasmic ribosomes and radioactivity in protein of 70S chloroplast ribosomes. From independent tests it has been discovered that chloramphenicol specifically inhibits



protein synthesis on chloroplast 70S ribosomes of *C. reinhardtii*. Ammonium ions also control the synthesis of ribosomes in wild type *C. reinhardtii*, but not in the arginine requiring mutant, *arg-1*.

## ENVIRONMENTAL BIOLOGY

A program for the study of phosphorus cycling has been initiated in the Rhode River-Muddy Creek system at the Chesapeake Bay Center for Environmental Studies. Baseline data of 18 parameters such as temperature, pH, salinity, and inorganic and organic phosphorus levels were accumulated for 13 stations. In addition, experiments on phosphate cycling and energy flow were initiated in phytoplankton, periphyton and salt marsh communities.

## National Zoological Park

Without question, the most important event at the National Zoo during the fiscal year 1972 was the arrival of two giant pandas for the people of the United States from the people of the People's Republic of China. This generous gift was formally accepted by Mrs. Richard Nixon on 20 April. The pandas, female named Ling-Ling and male named Hsing-Hsing, have nearly doubled the Zoo's attendance.

Twin orangutans (a rare event) were born in December and a male gorilla in May. As a result of captive breeding at the Zoo, Kanitia, the older of the two female bongos, gave birth to a female calf. The hatching of four brush turkeys, *Alectura lathami*, was a significant event. The male brush turkey began scratching a mound together in the spring of 1971 and worked the entire summer on the peat moss, shredded bark and grass clippings which were supplied to him. The female was allowed near the nest only on the occasion of egg-laying. The rare Rothschild's mynahs continued to be prolific, producing 18 young during the year, bringing the total offspring from a single pair to 29 during an 18-month period.

Other important births have been scimitar-horned oryx, sable antelope, Burmese brow-antlered deer, pygmy hippopotamus, and a greater kudu. The scientific program has a notable achievement in the second generation breeding of the tenrecoid insectivore, *Microgale talazaci*. For the second time, the rare and endangered species of caviomorph rodent, *Plagiodontia aedum*, was bred.

The golden eagles and bald eagles were given enclosures of their own and almost immediately nesting attempts were made. The female golden eagle laid ten eggs which proved to be infertile.

Bill and Lucy, the pair of the northern race of square-lipped rhinoceroses, were shipped to San Diego's Wild Animal Park in San Pasqual. The pair had been at the Zoo for 16 years without reproduction.



Ling-Ling, the female giant panda, eating bamboo.

Shortly after their arrival at San Pasqual, breeding between the two was reported.

An extremely popular new exhibit is the jungle scene in the Reptile House. The cage is decorated with a variety of living plants, tree trunks, and vines. Six adult iguanas, four basilisk lizards and ten giant toads were placed in the cage and breeding and territorial behavior is displayed. Another exhibit that is attracting interest is in the grouping of wildebeest, Cape buffalo, and zebra in one large corral.



Twin orangutans, Mawar and Melati, born to Jennie and Archie in December.  
(Photo by Donna K. Grosvenor)

The field study of the three-toed sloth entered its second year in Panama. By radiotracking it has been determined that young sloths learn the location of feeding trees while accompanying their mother during their





Golden marmoset father carrying baby on his back.

6 to 7 month association prior to weaning. At weaning the mother leaves the original home range thus donating it to the juvenile which then continues the cyclic tree-use patterns it has learned from its mother.

Some major equipment was purchased by the Division of Animal Health in order to update the surgery and radiology capabilities which includes a portable X-ray machine capable of taking diagnostic radiographs of animals ranging in size from a marmoset to a zebra; a portable gas anesthetic machine; and a portable electrocardiograph machine. The continuing clinical research covers the accumulation and documentation of base line data of various blood values on exotic animals; monitoring the clinical progress of the rheumatoid-like arthritis of the male gorilla, Tomoka; studying the effectiveness of panleucopenis vaccination in exotic cats by monitoring the antibody titers; the lead poisoning studies; and the supplementation of vitamin E and selenium in the diets.

In February the Zoo co-sponsored a conference of Brazilian and American specialists concerned with saving the golden marmoset from possible extinction. Construction was begun on a Golden Marmoset Breeding and Research Facility as an official gesture of concern for this vanishing primate. During the year the Zoo's golden marmosets produced three sets of twins.

### Office of Environmental Sciences

The increasing general awareness of the importance of environmental problems has caused an increase in the activities of this office during fiscal year 1972. Federal and private agencies and organizations have requested assistance in studying and solving national and international environmental problems and have provided financial support. The Office has assisted other Smithsonian organizations in utilizing their expertise and collections to greater advantage in the environmental field.

The staff is quite active on national and international committees and organizations involved in environmental and ecological impact studies, biological monitoring, plant and animal protection, study and preservation of natural areas, review of environmental and ecological research programs, biological control, marine and limnological research, and related areas.

Studies are being made in various parts of the world on the environmental and ecological impacts of technology in developing countries for the Agency for International Development. These include study of impacts by the Volta Reservoir in Ghana, a game park in Kenya, rapid urban growth in Seoul, Korea, offshore oil pollution in Indonesia, and other studies.

### ECOLOGY PROGRAM

The Smithsonian Center for Natural Areas is making detailed surveys of the Atlantic Coastal Plain and particularly the Chesapeake Bay region for the Department of Interior and Nature Conservancy. Surveys are being made of all protected natural and wilderness areas and ecologically important areas which should be procured and protected. Ecological advisory service is being furnished to requesting federal agencies, and a registry and computerization has been started for all United States natural areas.

A global biological monitoring program was prepared for the International Union of Biological Sciences, Commission on Monitoring. Detailed studies were made of the importance of museum specimens for studying the history of levels of toxic metals.



A study was made of wildlife, including endangered species, and their habitats, as indicators and indices of the status of environmental quality for the Council on Environmental Quality. Trends in populations, acreage of habitats and other factors were used in developing environmental indices and a proposed national biological monitoring program.

Remote sensing of vegetation and hydrology of the Rhode River watershed was studied with emphasis on identification of deciduous forests and salt marsh plants using different films and altitudes under a NASA contract. A symposium was held on uses of remote sensing in developing countries for AID.

The Peace Corps Environmental Program has resulted in over 650 applications and 220 volunteers with Masters and Doctors degrees in the biological and environmental fields, and 85 scientists have been sent to 24 requesting countries to carry out research programs.

#### OCEANOGRAPHY AND LIMNOLOGY PROGRAM

The Smithsonian Oceanographic Sorting Center processed over 3.5 million marine organisms in fiscal year 1972, and sent about 10 percent to scientists for taxonomic, distribution, and population studies. The Center assisted various national and international programs on environmental analysis, particularly the National Science Foundation's U.S. Antarctic Research Program (USARP), and the Marine Resource Monitoring and Assessment Program (MARMAP) of the National Marine Fisheries Service. The Mediterranean Marine Sorting Center in Tunisia contributed to the UNESCO-FAO sponsored Cooperative Investigations of the Mediterranean, and made available 2.5 million marine organisms to scientists who depend on research services of taxonomic sorting, community analysis, specimen and sample data management, and field logistics. During the past 10 years, over 40 million specimens have been processed by the Smithsonian's two centers which provide international leadership in this field. In cooperation with UNESCO, an international conference of directors of the eight sorting centers of the world was held in Tunisia to meet rapidly increasing demands in environmental biology research.

Studies of Skadar Lake, the largest of the Balkan Lakes, were initiated in cooperation with the Institute for Biological Research at Belgrade, Yugoslavia. The objectives of this 5-year project are to describe the physical, chemical, biological, and geological nature of this lake, to develop a capability for management of the lake and its drainage basin as the regional impact of man increases. A report was prepared on the "Existing Conditions of the Biota of the Chesapeake Bay" for the Corps of Engineers to be used in developing a broad-based program on environmental management.



## CHESAPEAKE BAY CENTER FOR ENVIRONMENTAL STUDIES

The Center initiated an interdisciplinary ecosystem study of the Rhode River and watershed under a grant from the National Science Foundation. The project is a microcosm study of a relatively undisturbed subestuary of Chesapeake Bay. Results will be compared with research projects on more heavily stressed areas of the bay being studied by the Chesapeake Research Consortium which includes the Johns Hopkins University, University of Maryland, Virginia Institute of Marine Science, and the Smithsonian Institution. The Rhode River study includes investigators from the above listed institutions, Catholic University, the U.S. Geological Survey, and NASA.

Other continuing research projects at the Center include ground-truth evaluation of remote sensing and other aerial photographic techniques; historical land-use patterns and their environmental impact; solid-waste disposal and erosion control; and basic studies in ecology. New studies include an evaluation of spray irrigation as a waste disposal technique; investigations into environmental decision-making by local units of government; an examination of the role of citizen participation in land-use planning; and research on the attitudes of urban and suburban youths towards their respective physical and social environments.

Educational activities include regular tours and lectures for elementary and secondary schools, colleges, and adult groups on the ecosystem research program of the Center. Facilities of the Center were expanded with the addition of 155 acres of land and completion of laboratories in the Old Dominion Building. A dormitory building for students is planned for construction by the end of the year.

## CENTER FOR SHORT-LIVED PHENOMENA

The Center's reporting network includes over 2700 scientists, scientific institutions, and field stations located in 143 countries on every continent and ocean of the world.

The Center continues to communicate data and information of significant changes to biological and ecological systems, including rare or unusual animal migrations, population explosions, and major mortalities of flora and fauna, as well as volcanic eruptions, the birth of new islands, major fireball events and meteorite falls, and environmental pollution events such as major oil spills, and pesticide and herbicide contaminations.

During fiscal year 1972, the Center reported 99 short-lived events that occurred in 50 countries. Scientific teams investigated at least 80 of the events. Forty-six earth science events were described, as well as 40 biological and 11 astrophysical events. The Center also reported unusual geological events, including fumarole activity in the Galapagos Islands, an

avalanche in Peru, seismic activity in Colombia, a landslide in Canada, fracturing in Ethiopia, a severe hailstorm in Milan, Italy, and floods in Brazil and West Malaysia.

The Center has worked on international programs concerned with global environmental monitoring including a world-wide survey for UNESCO on "National and International Environmental Monitoring Activities" and a paper on "The Establishment of an International Environmental Monitoring Program" invited by the Secretary-General of the United Nations Conference on the Human Environment.

### Center for the Study of Man

The Center brought together over fifty scholars from five continents to meet in Cairo, Egypt, and complete plans for focusing anthropological knowledge on problems of worldwide concern. The conference, held 8-12 May 1972, under joint auspices with the American University in Cairo and the University of Alexandria, agreed that one or more books on major world problems should be prepared as quickly as possible by individuals or teams of authors selected from all over the world.

Topics with which the books would deal include: (1) education in the modernizing world; (2) social integration in the new nations; (3) social dislocation of people accompanying urbanization, industrialization and population growth; (4) physical and mental health and social well-being in a variety of different cultures.

The Center will coordinate the interaction between anthropologists and teams of authors, in most cases behavioral scientists, who are chosen to prepare the books. The effect of this program will be to elicit data in the heads and notebooks of anthropologists which could then be put to use by the best of social scientists in seeking solutions to problems besetting the world.

During the past fiscal year ten final reports were received from recipients of Urgent Anthropology Small Grants. One of these reports was an analysis by Keith H. Basso and Ned Anderson of a unique, original American Indian writing system. Data on this Western Apache writing system was obtained from its 89-year-old creator, Silas John Edwards. Forthcoming publication of the results of this work will constitute a very significant contribution to the field of American Indian language writing.

Work on the *Handbook of North American Indians* over the past year has resulted in the receipt of over one-hundred manuscripts at the editor's office. More arrive each day and the editorial process is now underway. Our schedule calls for final publication of all 18 volumes by 1976. Another activity of the Center's American Indian Program has resulted in the publication of a list of 217 current periodicals by, for, and about American Indians.



## Smithsonian Science Information Exchange

This fiscal year marked completion of the Smithsonian Science Information Exchange's (SSIE) first year as a nonprofit corporation. It also marked the completion of the Smithsonian Institution's first full year of responsibilities for both policy and management responsibilities for the Exchange.

Of primary importance during the year was the increasing demand for user services which was reflected by an increase in user income of some 75 percent over the 1971 level. Much of this increase was attributable to an increase in the preparation of catalogs of ongoing research in many new areas of interest such as dental and health services research. Regular annual catalogs continue in such areas as outdoor recreation, water resources, and population research. The demand for services of the Exchange continues to be dominated by federal users, although industrial and foreign use is increasing. Brochures describing SSIE services have now been prepared in French and Japanese and requests from these two areas are increasing. Negotiations are underway to secure the services of a Spanish-speaking representative.

Among the new and innovative services offered by SSIE, the use of pre-run questions which can be made available at reasonable cost and maximum distribution has been the most well received. This service has been greatly expanded through the development of an SSIE *Newsletter* published ten times a year and sold on a subscription basis. The *Newsletter* has been instrumental in making SSIE better known throughout the scientific community. In addition, several volumes of ongoing research have been prepared for publication by a nationally known publishing firm with the intention of making information in the SSIE data bank more readily available to users throughout the country.

## Fort Pierce Bureau

The generous support of Edwin A. Link and J. Seward Johnson has enabled the Smithsonian to establish, on 16 October 1971, the Fort Pierce Bureau as an operating unit on the landward shore of the inland waterway, about 5 miles north of Fort Pierce, Florida. Directed by I. Eugene Wallen, who formerly headed the Smithsonian Office of Environmental Sciences, the new Bureau has a mission of marine biological and geological research, using the *Johnson-Sea-Link* and other submersibles as well as the oceanographic research vessels *Johnson* and *Sea Diver*.

During the year a fine new laboratory building was constructed at the site by the Harbor Branch Foundation for use in research in association with the Smithsonian. Five Smithsonian scientists are stationed at the



laboratory studying (1) marine ecology, (2) the biology of organisms under pressure, (3) the biology of sipunculid worms, (4) contaminant gases in enclosed spaces such as the submersible, (5) the recycling of nutrients through sewage and oysters, and (6) the biology of alligators and green turtles.

Principally an engineering activity in support of biologists, the Bureau also has about 35 employees in machine shops and carpenter shops, remodeling oceangoing vessels and developing research support equipment for use from the submersible. Such items as manipulators, communications systems, special diving equipment, special lighting, submersible collecting equipment, photographic facilities are being conceptualized, designed, and produced for use in research in marine biology.

Seagoing operations of the ship-submersible system will support Smithsonian scientific activities and extend the ability of the Smithsonian to cope with environmental problems, such as marine pollution and beach erosion.

## HISTORY AND ART

During the month of April 1972, nearly a million visitors—978,728, to be exact—came to the Smithsonian's National Museum of History and Technology. This single month's attendance far exceeds the annual attendance of many respectable and important museums, including several of our own. The visitors were drawn not by any special, dazzling temporary exhibition in the museum, but rather by what are somewhat inaccurately called its "permanent" exhibits—the halls and galleries that draw upon the museum's great collections, and upon the knowledge and skills of its curatorial and exhibits staffs to illuminate our nation's history and the history of technology.

Numbers of visitors are, of course, only one way to measure a museum's achievement. While no other museum in the Smithsonian, and we believe, in the world, can match the Museum of History and Technology on this score, it is satisfying to note that during the year under review the attendance at each of our history and art museums increased. In the case of the National Collection of Fine Arts the increase was due in large part to the opening in January of its new branch, the Renwick Gallery, which is now settling into its magnificently restored building on Pennsylvania Avenue. In the case of the National Portrait Gallery, unusually large numbers of visitors were drawn especially by two handsomely installed special exhibitions, one on the history of the performing arts in America, and one on unsuccessful candidates for the presidency. For its part, the Freer Gallery of Art benefited from the growing public interest in China that followed Mr. Kissinger's and the President's trips.

Pleased as we are by this evidence of popularity, we do not intend to lose sight of the other responsibilities that are so deeply rooted in the traditions of the Smithsonian, and that indeed insure that the experience of our growing number of visitors will be enlightening as well as delightful. We shall continue to stress the importance of collecting, of conserving, of studying, and of publishing the results of our studies. Catalogs published by the National Portrait Gallery in conjunction with its major shows are important works of historiography; exhibitions in the National Collection of Fine Arts have quite literally rescued significant artists from oblivion; the nineteenth-century post office in the Museum of History and Technology is meticulously accurate in every detail—these are simply outstanding examples of the way in which the increase of knowledge can, and in our view must, go hand in hand with its diffusion to the public. The role of the Archives of American Art, not only in providing a great resource



Country-store Post Office, ca. 1860, from Headsville, West Virginia, was reassembled and restored to full postal service in the National Museum of History and Technology.

for research, but also in supplying fascinating material for use in exhibitions of the National Collection of Fine Arts, is another example, as is the role of the Joseph Henry Papers and the Smithsonian Archives, in keeping always before us the example of our predecessors and the evidence of their determination, under differing circumstances, to maintain a due balance between the scholarly and the public functions of the Institution.

The Bicentennial of the American Revolution offers us challenges on both fronts. We must, as the American Revolution Bicentennial Commission suggests, take this event as the occasion for deepening our understanding of the entire history of our nation. On the other hand, we must also prepare ourselves for the descent upon Washington and our museums of an awe-inspiring number of visitors in the years around 1976. We are confident that the Smithsonian's response will be worthy of a great institution and a great occasion.

Finally, it would be unthinkable to conclude even these brief observations without grateful mention of the continuing generosity of Joseph H. Hirshhorn, which will make the opening of the Hirshhorn



Museum and Sculpture Garden even more brilliant than we had expected, and the munificence of the Carnegie Corporation of New York and the Andrew W. Mellon Foundation, which have provided a fitting home for the Cooper Hewitt Museum. As always in such cases, our pleasure in these great gifts is enormously increased because they are evidence of the donors' confidence in us.

### The National Museum of History and Technology

Remarkable progress was made during the past year in the National Museum of History and Technology. Five major exhibition halls and a special exhibits gallery in the central segment of the Museum's third floor were being reconstructed into the Halls of Communication. A newly designed Hall of Money and Medals and a Hall of Printing and Graphic Arts were completed by the end of the fiscal year and opened to the public shortly thereafter, and the remaining three halls are well in progress. One of these depicts the history of news media, the installation of which has been made possible by the support of Time-Life, Inc. It will open in the spring of 1973, in time to commemorate the firm's 50th anniversary, as the Henry R. Luce Hall of News Reporting.

The Museum was fortunate in enlisting the interest of outside industries and trade organizations in contributing to the Museum's programs to fulfill its mission in new dimensions. Sears, Roebuck and Co. donated to the Museum an important collection of 3200 cast iron and tinplate toys and provided funds for installing a special exhibit on the second floor entitled, "A Children's World," and developing a series of satellite exhibits which are being presented by the Smithsonian Institution Traveling Exhibition Service.

To mark its 75th year in book publishing, Doubleday & Company, Inc. has agreed to sponsor a series of Frank Nelson Doubleday Lectures on the general subject of "Frontiers of Knowledge," which will be held during the next fiscal year. The Gulbenkian Foundation has provided a grant for a period of three years to enable the Museum to undertake a program of studies in the history of Portuguese navigation with major scholars in the field. The Museum has developed plans for a new and greatly expanded Hall of Maritime Enterprise with the cooperation of the Department of Commerce. The construction and installation of this hall will be made possible by the participation of the related maritime industries.

The Museum's first floor was enhanced by the addition of The Smithsonian Bookstore, which opened on 17 June. It was installed and is operated by McGraw-Hill Book Company in cooperation with the Institution. According to *Publishers Weekly* the bookstore contains "the world's largest collection of retail books on American civilization . . . arranged topically

as opposed to the traditional categories of fiction, nonfiction and poetry . . . . Not only is this the largest collection of books of Americana on sale, it is also the largest museum bookstore in the world . . . ." Because the Bookstore spotlights a variety of specimens from the Museum's collections, it is literally "a bookstore in a museum and a museum in a bookstore." Featured is a reproduction of the facade of *Shakespeare & Co.*, which Sylvia Beach operated during the early decades of the century in Paris and which formed a center for American writers abroad.

The Museum was particularly fortunate also in acquiring a number of significant items, ranging in size from an elegant little document box used for keeping legal papers during the enforcement of the Stamp Act in 1765 to a full size nineteenth-century country store post office. The post office



Country-store Post Office in the National Museum of History and Technology, where visitors can have cards and letters stamped with the "Smithsonian Station" postmark.



has been officially designated the Smithsonian Station of the U.S. Postal Service and is operated daily during public hours by clerks of the Postal Service. This new facility has added a new dimension to the Museum's exposition of history and has proven to be a total success.

A considerable amount of the scholarly resources of the Museum have been used for the Bicentennial exhibitions, particularly the "Nation of Nations," in addition to the planning for a new major Hall of Political History, and for developing long-range plans for research centers which will enlist the support of institutions outside the Museum towards a fuller understanding of American civilization.

#### DEPARTMENT OF APPLIED ARTS

Plans were initiated and installation work was well advanced on the reconstruction of exhibition halls for Monetary History and Medallion Art, Graphic Arts, News Reporting, Photographic History, and Philately and Postal History. These major exhibits, which will emphasize the theme of communications in history, will restore the gallery areas that were damaged by the fire on the third floor.

The opening of the nineteenth-century post office and general store on 27 September 1971 culminated a two-year research and exhibition project undertaken jointly by the Division of Postal History and the U.S. Postal Service. Mr. Charles Rowell, restoration specialist, dismantled the building which had stood at Headsville, West Virginia, since about 1861 and reassembled it at the Constitution Avenue entrance to the Museum. The U.S. Postal Service assigned a staff of three clerks, in appropriate costume of the period, to provide philatelic and regular mail services to museum visitors.

The special exhibits program was significantly carried forward when Mrs. Elvira Clain-Stefanelli organized a special exhibit illustrating recent developments of medallion art in the United States for the F.I.D.E.M. Congress in Cologne, Germany, in September 1971. Dr. V. Clain-Stefanelli was an initial organizer and the Chairman of the Exhibits Committee for the 1971 National Convention of the American Numismatic Association which was held in Washington. The special exhibit, "Mexican Stamps Designed by America's Lance Wyman," held in the Museum, was supplemented by special philatelic exhibits in New York City, Anaheim, and San Francisco.

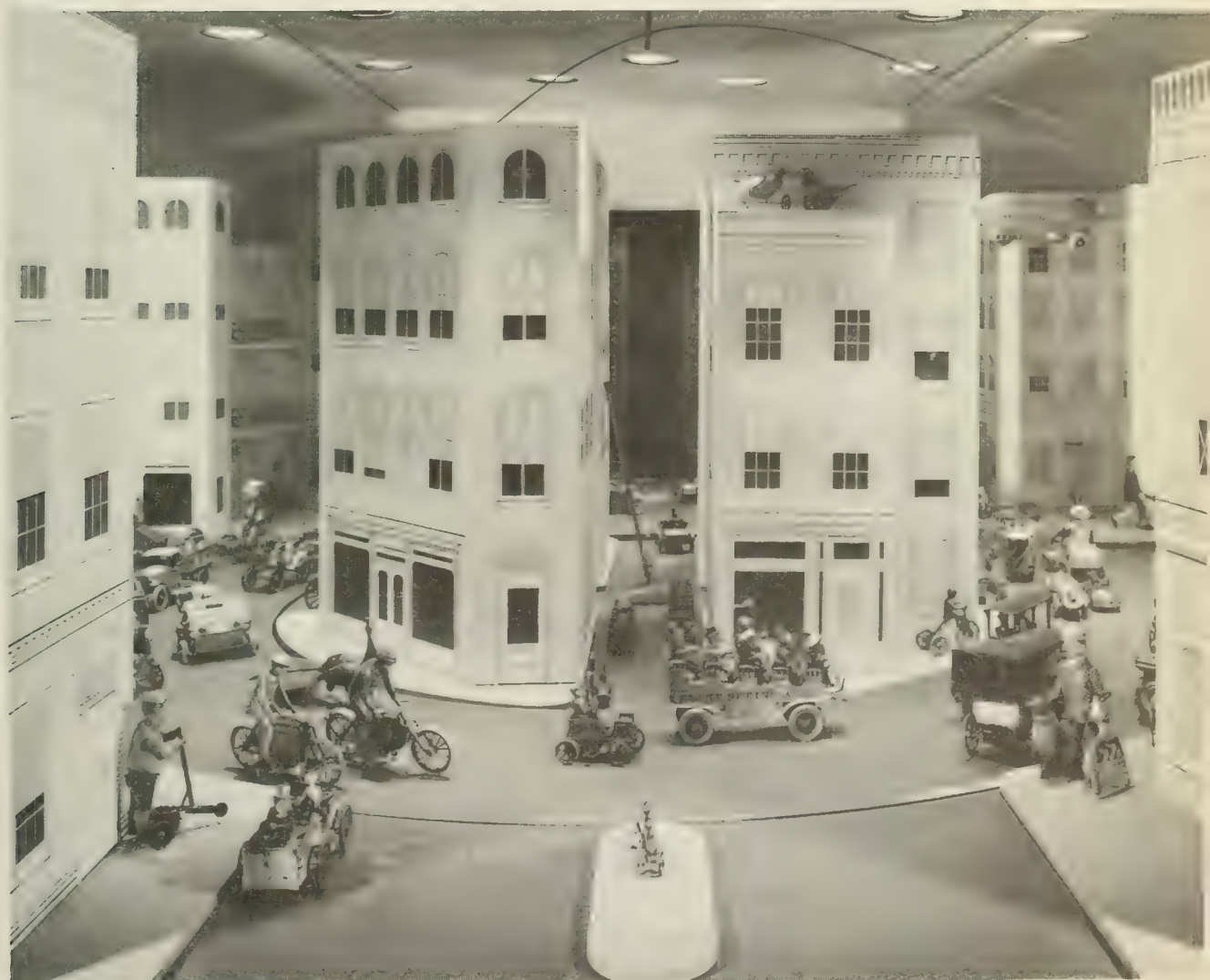
At the close of the special exhibit "Dorothy Liebes Retrospective Show of Textiles," forty-three fabric examples were chosen for the permanent collections of the Division of Textiles. Another outstanding collection received was of ninety hand-embroidered and lace handkerchiefs of the nineteenth century presented by Mr. Leon Orlowski.



## DEPARTMENT OF CULTURAL HISTORY

A special exhibition, "A Children's World," was the result of an extraordinary gift of more than 2800 cast iron and tin-plate toys from Sears, Roebuck and Co., which also sponsored the exhibit. The 350th anniversary of the Pilgrims' first Thanksgiving occasioned a Mall entrance holiday exhibit, which opened with a reception in honor of the Honorable Dorothy F.W. Innes, The Lord Mayor Alderman of Plymouth, England.

Several other major acquisitions have enhanced the Department of Cultural History's collections. The rural general store as an American institution was given recognition in the gift of The George C. Seyboldt Collection of Marketing Artifacts, numbering several hundred objects. The Robert Young Brown American Stoneware Pottery Collection came as a



"The City" with its revolving platform is a popular attraction in the special exhibit, "A Children's World" in the National Museum of History and Technology.



A few of the many cast-iron and metal toys on display in "A Children's World," a special exhibit in the National Museum of History and Technology.

significant supplement of 135 items to the Museum's holding of American ceramics. A joint acquisition of the Divisions of Ceramics and Glass and Preindustrial Cultural History, this is an important element in a new American Ceramics Study Center developed by both divisions. The gift by Lemuel Pope of colonial and federal period furniture is important for its



history of continuous use by the Pope family of Massachusetts. A rare violin by Jacobus Stainer, several eighteenth-century items of clothing, and a large number of examples of late nineteenth-century Japanese porcelains made for the California market are other significant acquisitions.

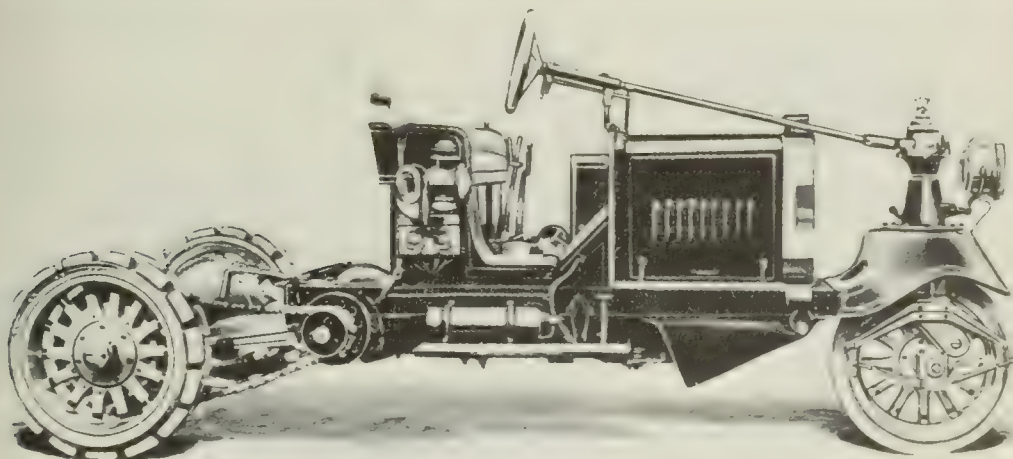
The Division of Musical Instruments again distinguished itself in a series of evening concerts. In support of such concerts, the recently formed Friends of Music at the Smithsonian collaborated with the division to sponsor a musical weekend in April. Designed to communicate to musical friends of the Smithsonian the visual and aural richness of the musical instrument collections, this elegant occurrence included demonstrations, tours, social events, and a concert of baroque music superbly performed.

Four projects currently supported by the Smithsonian Research Foundation include the compilation of on-site information about eighteenth-century Mexican organs, field research on the remarkable material culture of Blacks in coastal South Carolina, investigations concerning a German-American cabinetmaker of Wisconsin, and research on American pottery.

#### DEPARTMENT OF INDUSTRIES

Fiscal year 1972 witnessed the publication of three books by staff members of this Department. They included the elegant and exhaustive study of Frederick Carder, founder of the Steuben Glass Works, by Paul V. Gardner. John Schlebecker authored two valuable reference works for agricultural historians and museologists which will be published by the Smithsonian Institution Press.

Five full-size additions to the vehicle collection include a 1912 Knox tractor, the predecessor of the modern day tractor trailer. The railroad



Knox three-wheel tractor, 1912, predecessor of the modern tractor trailer.



collection was enriched by the acquisition of the *John Bull* (1831) locomotive's original whistle which was obtained by private funds at the Penn Central auction in Philadelphia. The Section of Mining acquired a Draeger portable breathing lung of 1904. This was the first style of mine rescue breathing apparatus used in the United States.

Significant additions to the collections of the Division of Ceramics and Glass are a Vienna porcelain candlestick (ca. 1730) and a Longton Hall figure of "Hercules and the Nemean Lion."

#### DEPARTMENT OF NATIONAL AND MILITARY HISTORY

The most important addition to the arms collections in the past 50 years was a group of 181 firearms from the Estate of William Goodwin Renwick of Tucson, Arizona. Mr. Renwick was one of the foremost collectors of this era. A number of the pieces are masterpieces of design and armament reflecting the skill of fine artisans. Included also are many with historical associations from Maximilian I in the 15th century to General J.E.B. Stuart, Confederate States Army, in 1863.

A full-rigged model of the Continental Gondola *Philadelphia*, finely detailed to represent that surviving naval relic of the War for Independence as originally commissioned on Lake Champlain in 1775, was completed by Museum Specialist Howard P. Hoffman. The Division of Naval History also secured a model of the Continental Frigate *Confederacy* (1778), constructed on British Admiralty plans. Another notable acquisition was a rare white summer service uniform worn by Ordinary Seaman Charlton H. Wing, USN, during the Civil War, donated by his grandson, Bradford L. Cleveland.

A very significant specimen received in the Division of Political History is a unique tooled leather document box that was used to hold the pre-stamped papers required for legal documents during the enforcement of the Stamp Act in the American Colonies in 1765. Another valuable addition is the chair President Abraham Lincoln used in the Cabinet room at the White House during his administration. This chair was the gift of Mr. Elwood Middleton.

A silver coffee service owned by Mary Todd Lincoln and some pieces of china from a dessert service used in the White House was a bequest from Lincoln Isham, great grandson of President and Mrs. Lincoln. The National Collections received as a gift from Mr. August Belmont the inlaid lacquer Japanese ladies' desk brought back from Japan by his ancestor, Commodore Matthew Perry, when he returned from his expedition in 1854.

#### DEPARTMENT OF SCIENCE AND TECHNOLOGY

A second section of the Hall of Electricity was opened, covering the development of the science of electricity in the second half of the

nineteenth century. There is also a special reference area where the visitor can leaf through collections of photographs and look at books related to the subject. Special exhibits on the laser and on electrical appliances also opened in this hall. Among the series of monthly exhibits, special mention might be made of one featuring the work of the department's technical laboratory, giving the visitors an idea of the special talents necessary in a museum.

Some major collections were obtained by the department, including automatic control devices from Taylor Instrument Co., some unique early plastic materials from the Celanese Plastics Co., experimental psychology



Admiralty-style model of the Continental Frigate *Confederacy*.

equipment from Cornell University, a twelfth-century rare Persian drug jar from the E. R. Squibb Fund, a major collection of instruments from the Maryland Medical and Chirurgical Faculty, materials related to the work of John William Draper from his descendents, and the contents of the Western Union Museum. Hundreds of individuals and companies responded to a plea publicized in the spring of 1972 asking for early electrical appliances. As a result a fine collection ranging from toasters and egg beaters to stoves and washing machines has been added to the National Collections. On display in the Hall of Nuclear Energy is a model of a boiling-water reactor presented by Babcock & Wilcox and a demonstration of the thermonuclear pinch effect from Los Alamos Scientific Laboratory.

Increasing emphasis has been placed in recent years on the collection of documentary material to complement our artifacts. Two collections mentioned already—Draper and Western Union—contain some very important archival material that will be of great use for research being done at the museum. Two formal archival collecting programs have been started, one by the Division of Mechanical and Civil Engineering in cooperation with the American Society of Mechanical Engineers and the American Society of Civil Engineers, the other by the Division of Electricity in cooperation with the Institute of Electrical and Electronic Engineers. A continuing special project of Robert Vogel has been the development of industrial archeology. A number of sites have been inspected—some with the help of the National Park Service—and a society has been founded to promote wider interest in the subject in the Western Hemisphere.

### Archives of American Art

The Archives of American Art enjoyed an unusually successful year in its work of acquiring, organizing, and giving access to documentation on the visual arts in America. More than a hundred collections of personal papers and institutional records came to the Archives during the year, either as gifts or as loans for microfilming. Among the more important of these were the correspondence and photographs of the influential Philadelphia painter and teacher Thomas Anshutz; papers of the New York painter Philip Evergood; correspondence of the nineteenth-century painter Lily Martin Spencer; sketchbooks of the contemporary painter Karl Knaths; correspondence and unpublished manuscripts of the architectural historian Sybil Moholy-Nagy; and records of the Alan Gallery in New York, of the Allied Artists of America, of the Corcoran Gallery, and of the Isabella Stewart Gardner Museum and the Institute of Contemporary Arts, both in Boston.



The year saw a marked increase in use of the Archives by researchers in the various regional offices. The 790 letters of inquiry were answered and research was conducted on the premises by more than 700 historians, curators, graduate students, and other scholars. Both figures represent twice the volume of research during the previous year.

Two books published in 1972 based entirely on material in the Archives are *Ben Shahn*, by John Morse, and *Terminal Iron Works: The Sculpture of David Smith*, by Rosalind Krauss. Of the many other publications dependent on Archives resources a few are Francis V. O'Connor's *The New Deal Art Projects: An Anthology of Memoirs*, Barbara Rose's *Frankenthaler*, Nathalia Wright's *Letters of Horatio Greenough*, Whitney Museum of American Art's *Eastman Johnson*, and William Truettner's "William T. Evans: Collector of American Paintings" in *The American Art Journal*.

Two projects initiated in 1972 under grants from the New York Foundation and the Andrew Wyeth Foundation were the organization and indexing of the Archives photograph collection and the editing for eventual publication of a richly detailed late nineteenth-century diary kept by the New York painter Jervis McEntee. Other projects continued during the year were the microfilming of the Black Mountain College Art Department records and the Archives Oral History Program, which resulted in 90 tape recorded interviews, of which 65 have been transcribed.

A major activity was the preparation of a *Guide* to Archives resources, to be published in the fall by R.R. Bowker Company. This volume, to be offered to college, museum, and public libraries throughout the country, will list and describe 550 collections of papers available to scholars at the Archives of American Art.

### Freer Gallery of Art

The Freer Gallery of Art continued to carry on research, curatorial, and exhibition activities as in the past. The third Director of the Gallery, John A. Pope, retired on 13 August 1972, after 28 years of distinguished service. He was succeeded by Harold P. Stern, and Thomas Lawton was appointed Assistant Director. In his retirement Dr. Pope will continue to work for the Gallery with the goal of producing a comprehensive catalog of the Freer's Japanese ceramic holdings.

During this year, there were several special exhibitions in the Gallery. To commemorate the superb objects bequeathed by the late Eugene and Agnes E. Meyer, a Memorial Exhibition was opened in September. Many of the Chinese and Japanese objects included in the exhibition had not been shown previously, and all are regarded as significant additions to the collection. To complement the Inaugural Exhibition of Japan House in



Japanese Standing Buddha. Wood covered with cloth, lacquer, and gilt, 82 inches high. Heian period, A.D. 11th century.

New York in September, the Gallery opened a special exhibition of Japanese paintings of the Rimpa School. During the Christmas season, a special showing of biblical manuscripts was organized, and in February an exhibition of Persian art was opened as part of the Gallery's program of honoring the 2500th anniversary of the founding of the Persian Empire.

The Freer Gallery of Art partook of and assisted the current national interest and awareness of the People's Republic of China by holding public showings of a film made by Peking television on "Recent Archaeological Discoveries in the People's Republic of China." Arrangements for this film were made with the knowledge of that government and the Gallery is grateful for the opportunity of being able to offer the film to the public. At the same time, the Director of the National Palace Museum in Taipei, Taiwan, visited the Freer, and it is the Gallery's intent to have close ties with all scholars interested in the areas encompassed by the collections.

The Visiting Committee, composed of eight distinguished members, held its first meeting on 13 October 1971. Deliberations of the Committee have been of great assistance to the Gallery, and their initial report was submitted to the Secretary for transmittal to the Board of Regents; a second meeting was held on 31 May 1972.

The Freer Gallery of Art will commence the celebration of the 50th anniversary of its opening on 2 May 1973. During that year, the Gallery plans to hold three special exhibitions: (1) Japanese Ukiyoe painting, (2) Chinese figure painting, and (3) Islamic art of the Book; to present three Freer medals; and to conduct those symposia related to the special exhibitions. As part of the anniversary year, a 50th Anniversary Fund Raising Program has been initiated.

### National Collection of Fine Arts

Doubtless the most impressive event of the year was the opening late in January of the Renwick Gallery. The staff has worked for several years on plans for restoring the building at 17th and Pennsylvania that served as the first Corcoran Gallery of Art, which now, bearing the name of its architect, has been opened as a curatorial branch of NCFA for the presentation of American craft and design. The central stairway, the large salon and the octagon room have been restored in the style of the period. The rest of the museum has been converted into modern gallery space, always respecting the original lines of the building. In addition to the permanent displays in the period rooms, the gallery opened with seven exhibitions, the major being "Woodenworks," an exhibition of the works of five designers in wood, and "Design is . . ." One of the galleries has been set aside primarily for exhibitions from abroad sponsored through embassies. The Renwick has very quickly become a favorite meeting place,





The installation of the Bombay Chandelier was one of the many technical problems faced in completing the Renwick Gallery for its January 1972 opening.

and a very active program of lectures, demonstrations, and other public events has been inaugurated.

In the Fine Arts and Portrait Gallery Building, there were 6 large and 17 smaller exhibitions presented during the year, all but 4 produced by the staff of the NCFA and all designed and mounted by the museum. Seven were accompanied by substantial publications, the largest being a monograph on W.H. Johnson, the first serious study of the man. Others were *Boris Anisfeldt*, *Lee Gatch*, *Drawings of William Glackens*, *Two American Painters*, *The Prints of J. Alden Weir*, and *National Parks and the American Landscape*. The exhibition of works by Johnson, a black painter active chiefly in the 1930s, required several months of intensified work by the conservation laboratory before these largely forgotten works could be returned to public attention. This exhibition, as well as "Two American Painters: Fritz Scholder and T.C. Cannon," is circulating abroad. Also as part of its program of exhibitions abroad, the NCFA sponsored an exhibition of contemporary works, prepared by Mr. Walter Hopps, for showing at the Venice Biennale and elsewhere.

Six new galleries were opened in the museum, chiefly for the presentation of the permanent collection. These include two galleries devoted to nineteenth-century American landscape. As a result of work in preparation for the Washington subway, which will pass the museum on G Street, a crack developed in the Lincoln Gallery which weakened the cornice and made it necessary to evacuate the large collection of works of art from this beautiful and historic space and place them in storage. When the Lincoln Gallery is reopened, the entire gallery will be reorganized and relit in the manner of the already completed twentieth-century section.

Recording of the collection on the computer reached the first stage of completion, marking further progress in the restudy and total inventory of works. During the year, 1590 new works were accessioned; among the notable acquisitions were *October* (1867) by John W. Ehninger, *Mary Elizabeth Francis, the Artist's Daughter* (c. 1840) by John F. Francis, a large painting by Esteban Vicente, two drawings by Edward Hopper, and 25 drawings by Alfred Maurer.

Two postdoctoral Fellows and four student Fellows spent the year at the Collection, and an internship in museum education was provided a student preparing for the degree of Master of Arts in Teaching. A new intern program in museum training leading to a Master's degree in the History of Art with concentration in museum practice was instituted in association with George Washington University, and plans were made for year-long internships in museum training for advanced students to begin in the autumn of 1972.

The Department of Education inaugurated a stimulating program, Discover Graphics, which brought groups of high school students and their





Provided with prefabricated cardboard walls, children play in the courtyard of the NCFA/NPG building during Children's Day, an annual event at the National Collection of Fine Arts.

teachers into active participation with a resident graphic artist in the new Graphics Workshop established at the museum. Study was divided between the workshop and the print-and-drawing study room. Associated in the program was a group of young artists from Federal City College. The active corps of docents, trained by the NCFA education staff, conducted 283 gallery sessions for schoolchildren, and 234 sessions for the general public. This dedicated group has also taken charge of all exhibition openings at the NCFA.

The Smithsonian Institution Traveling Exhibition Service, administered by NCFA, provided exhibitions on art, history, and science for 550 installations throughout the country to an estimated audience of four million. To aid in the mounting and packing of exhibitions, NCFA's newly established carpenter shop was turned over entirely to the SITES operation.

This has been an expanding year for the *Bicentennial Inventory of American Paintings before 1914* since the well-laid plans of last year have been providing astonishing results from around the country. The staff has been increased to record the many works reported. Plans have been made



also for a series of exhibitions in all areas of the museum to commemorate the Bicentennial of the American Revolution.

## National Portrait Gallery

Two major exhibitions on widely differing themes were mounted by the Gallery during the course of the year. The first of these, which opened in the fall, was entitled "Portraits of the American Stage 1771-1971." Organized by Monroe Fabian, associate curator of the Gallery, who also wrote the accompanying catalog, the exhibition contained nearly 100 likenesses of significant theatrical personalities, as well as a large number of associated objects. The Gallery's spring exhibition, "'If Elected . . . ' Unsuccessful Candidates for Presidency 1796-1968" was conceived by Beverly Cox, assistant historian of the NPG, and organized by her in collaboration with Harold Francis Pfister, curatorial assistant at the Gallery. It was accompanied by a 512-page catalog written by the Gallery's historian, Lillian B. Miller, and other members of her staff, as well as a 48-page student-oriented synopsis of the catalog, which is being distributed nationally in an edition of 60,000 copies by Education Ventures, Inc., of Middletown, Connecticut, together with teaching guides and color-slide sets. Portraits of 80 losing candidates for the presidency, including major third party contenders, were included in the exhibition, which also contained more than 500 political campaign items of all kinds, many drawn from the great Ralph E. Becker Collection in The Museum of History and Technology. Installed in a fashion suggesting the panoply of political campaigning by James J. Shelton, chief, and Michael Carrigan, assistant chief, of Exhibits Design, the portraits and associative objects were accompanied by a 45-minute continuously playing tape of campaign songs and speeches, as well as a film showing such candidates as Norman Thomas, Al Smith, and Wendell Willkie. "'A Glimmer of Their Own Beauty;' Black Sounds of the Twenties," an exhibition organized by the Gallery's Education Department was held during the summer months. A two-part exhibition of Black history in the District of Columbia. "Washington from Banneker to Douglass, 1791-1870" and "Washington in the New Era, 1870-1970" was held in the fall and spring of the year, respectively.

Ninety-nine portraits were acquired during the course of the year. Important purchases included a striking oil of General William Clark (of the Lewis and Clark Expedition) by famed Indian painter George Catlin; a William Jewett portrait of John C. Fremont, the western explorer known as the "Pathfinder," who was also the first Republican candidate for the presidency; a likeness of the aged Andrew Jackson painted in 1840 by Trevor Fowler; the group portrait of Zachary Taylor and his military aides

painted in Mexico in 1848 at the behest of a Richmond, Virginia, newspaper editor, who believed (correctly as it turned out) that Taylor would be the next president; a small oil of Confederate General Joseph E. Johnston by Benjamin F. Reinhardt; a rare and moving portrait of Charlotte Cushman by William Page; a magnificent likeness of the Black actor Ira Aldridge by Henry Perronet Briggs, purchased from the Player's Club in London; and a pastel of the great dancer Ruth St. Denis by Max Wieczorek.

Among the important portraits which came to the Gallery by gift were a self-portrait of Alexander Calder, presented by the artist; a self-portrait of William Glackens, the gift of Mr. and Mrs. Ira Glackens; a marble bust of Josiah Quincy by Horatio Greenough, given by Edmund Quincy; an exceptional folk art sculpture of Senator Stephen A. Douglas, presented by Richard Guggenheim; an Eastman Johnson portrait of President Grover Cleveland, given by the subject's son Francis; and a Norman Rockwell portrait of President Nixon, funds for which were provided by the Nixon Foundation.

### Joseph H. Hirshhorn Museum and Sculpture Garden

During fiscal year 1972 construction continued on the Hirshhorn Museum and Sculpture Garden. The scheduled completion date is May 1973.

In addition to preparing the Museum's collections for the move to Washington, building the professional staff and projecting future Museum activities, plans for the inaugural exhibition were advanced, and the selection of paintings and sculpture to be displayed was completed. The selected works, currently being researched and prepared, will be installed to greatest advantage in the Museum's galleries and garden. Mr. Douglas MacAgy, formerly director of national exhibitions, National Endowment for the Arts, was named curator for the opening exhibition.

The catalog of the inaugural exhibition is being prepared for publication. One thousand paintings and sculpture will be documented and reproduced—more than two hundred in color—in this volume, which will serve as an introduction to the scope and variety of the Museum's collections.

An event of outstanding importance in fiscal year 1972 was the formal commitment of 326 outstanding paintings and sculpture by Mr. Hirshhorn to the Museum. This gift, valued at more than seven million dollars, adds a group of significant works of art to the collections and goes far beyond the agreement entered upon by the donor and the Smithsonian Institution.

The Board of Trustees of the Hirshhorn Museum held its first meeting on 25 September 1971 at the Smithsonian Institution, Washington, D.C.





*La Serpentine*, 1909, by Henri Matisse.



Presidentially appointed members of the Board are: Dr. Daniel P. Moynihan, *Chairman*, Dr. George Heard Hamilton, *Vice-Chairman*, Mr. H. Harvard Arnason, Mr. Leigh B. Block, Mr. Theodore E. Cummings, Miss Elizabeth Houghton, Mr. Taft B. Schreiber, and Mr. Hal B. Wallis.

During this period of organization and acceleration of overall activities, the Museum has continued its policy of providing replies to public requests for research information as well as of lending outstanding works of art to national and international exhibitions. More than 295 requests for research information and photographs were answered. Eighty-three paintings and sculpture were loaned to 50 museums, galleries, and institutions. More than 115 scholars, artists, and officials visited the Hirshhorn Museum office and warehouse in New York. Approximately 2300 people attended 33 tours of the Hirshhorn Sculpture Garden, Greenwich, Connecticut, for the benefit of educational, cultural, and philanthropic organizations.

### Cooper-Hewitt Museum of Decorative Arts and Design

The plan for establishing a national museum of design is close to becoming a reality. The Carnegie Corporation has given the Andrew Carnegie property (consisting of the mansion, an adjoining townhouse and gardens) to the Smithsonian as a new home for the Museum. A gift of \$500,000 from the Andrew W. Mellon Foundation and a comparable amount in smaller donations will make it possible to proceed with the renovation. The firm of Hardy, Holzman, Pfeiffer Associates has been commissioned to do the architectural work.

With an exciting future ahead, the Museum has been able to attract many gifts. The collection was enriched by 3036 works of art from 78 donors. The most significant gifts were: a collection of over 200 examples of late eighteenth- and early nineteenth-century French wallpapers, a collection of 187 marionettes, two eighteenth-century chinoiserie terra cotta figures, a seventeenth-century Spanish bird cage, an early seventeenth-century altar frontal, two Louis XV lacquer commodes, a large sample of eighteenth-century Chinese wallpaper, eleven stage designs by Stewart Chaney, and a glass and metal chandelier from a room designed in 1929 by the firm of Alavoine. Objects cataloged numbered 1362.

A designer's Pictorial Reference Library containing over 300,000 items has been promised to the Museum; the first installment of 12 vertical file drawers has been received. The library has been expanded to include a Color Archive containing publications, manuscripts, swatches, standards, instruments, and other materials related to the study of color. Eight hundred volumes were added to the library, including 46 scrapbooks, 173 rare architectural books, and 310 rare textile books ranging from the sixteenth to nineteenth centuries.

The Museum's long-term loan program has been extended throughout the renovation period. An additional 568 objects were included in exhibitions at the Metropolitan Museum, National Collection of Fine Arts, Museum of American Folk Art, Birmingham Museum, Brooklyn Museum, Corcoran Gallery, Virginia Museum of Fine Arts, Philadelphia Museum, Dayton Art Institute, Parrish Art Museum, John and Mable Ringling Museum, Colorado State University, Mary Washington College, Plattsburgh State College, Hofstra, and the University of Michigan.

Five exhibitions made up entirely of objects from the collection were shown elsewhere: "Salute to the Cooper-Hewitt" at the Winter Antiques Show in New York; Albrecht Durer prints at the Detroit Institute of Art; "New York As It Was and Might Have Been" at the Century Club; ceramics from the James Hazen Hyde Collection of the "Four Continents" at the opening of the Smithsonian's new Renwick Gallery in Washington; and a benefit exhibition of Winslow Homer paintings, drawings, and prints at the Wildenstein Gallery for which the Smithsonian Institution Press published a catalog.

The Museum was given a grant by the National Endowment for the Arts to install a permanent outdoor display featuring changing film programs on urban design. The Carnegie facilities were made available to numerous outside organizations for educational purposes. Members of the community were offered a program of 24 events, including curatorial lectures, children's workshops, tours, and social activities. The study collections were used by over 200 scholars from this country and abroad. Ten student interns and fifty-seven volunteers received training at the Museum.

The staff was honored in a variety of ways. Catherine Lynn Frangiamore was awarded a fellowship to pursue independent research next year; Regina Solinger and Eliane Zuesse were given stipends to participate in a summer workshop at Cooperstown; Elaine Dee and Christian Rohlfing received travel grants to attend international conferences; and Milton Sondag published an article in the December issue of the *Textile Museum Journal*.

Four new members were added to the Advisory Board: The Honorable Robert Weaver, former Secretary of HUD and now professor of urban affairs at Hunter College; Mr. Cass Canfield, Jr., the publisher; Mr. Sydney Gruson, Vice President of the New York Times Company; and Mr. Thomas E. Murray II, a Member of the New York Stock Exchange.

Planning for the future has been in progress over the past year. A major grant from the New York State Council on the Arts has enabled the Museum to conduct studies and conferences leading to a redefinition and expansion of its role. As the need for a museum of design process becomes more evident, the staff looks forward to the Museum's reopening with great anticipation.



## National Armed Forces Museum Advisory Board

During fiscal year 1972 the major endeavor of the National Armed Forces Museum Advisory Board, assisted by its staff, was toward the establishment of Bicentennial Outdoor Museum. To that end, and also to designate the study center authorized under Section 2(a) of Public Law 87-186 as the Dwight D. Eisenhower Institute for Historical Research, S. 2153 and H.R. 10311—identical bills—were introduced into the 92nd Congress.

The proposed legislation was approved by the National Capital Planning Commission, the Department of the Army (on behalf of the Department of Defense), and the Department of the Interior. At the request of the National Park Service the proposed legislation was changed to designate the prospective facility Bicentennial Outdoor Museum, rather than Bicentennial Park. The Department of the Interior further recommended the outright transfer of Fort Foote Park and Jones Point Park to the administrative custody of the Smithsonian Institution upon appropriation of funds for the museum's development, rather than joint use by the two agencies.

The proposed legislation received the strong support of the Administration. President Nixon, in a special Bicentennial message to the Congress on 4 February 1972, endorsed Bicentennial Outdoor Museum as an "important undertaking to give the bicentennial activities metropolitan scope," and asked "prompt Congressional action to approve the Bicentennial Outdoor Museum and to authorize appropriations for planning it." At the same time the Office of Management and Budget, Executive Office of the President, included funds for planning the museum in the Administration's budget for fiscal year 1973.

## Joseph Henry Papers

Volume one of *The Papers of Joseph Henry*, documenting his early years in Albany, New York, is scheduled for formal release on 26 December 1972 at ceremonies to be held in the Great Hall of the Smithsonian Building. Accompanying the ceremonies will be an exhibit displaying a selection of Henry manuscripts, items from his personal library, as well as research materials and techniques used in various stages of the editorial process. A number of items to appear in future volumes will also be exhibited.

Work is presently underway on volume two, which documents Henry's first years at Princeton University as Professor of Natural Philosophy (from the end of 1832 through 1835). While family connections and old scientific friends still tied Henry to Albany, his arrival at Princeton marks a



new stage in his career. Building up the facilities for scientific teaching and research at Princeton, Henry enters the national and international scientific scene. An extensive run of laboratory notes shows the intensification of his pioneering work in electromagnetism begun in Albany. Aside from documenting other aspects of Henry's widening scientific interests, correspondence and personal journals illuminate the developing environment for science not only at Princeton but at national centers like Philadelphia and New York.

The Nineteenth-Century Seminar continued its successful run under the direction of Nathan Reingold, who also organized a series of three Saturday Conferences in spring 1972 on the history of science and its social and cultural context.

### Office of American Studies

The Office of American Studies conducts a formal graduate program in material culture of the United States which is directed to the original Smithsonian purpose: "the increase and diffusion of knowledge." Graduate students from area universities participated in the program, gaining academic credit toward advanced degrees at those universities. All entering graduate students take the seminar in "Material Aspects of American Civilization," which was taught by Dr. Harold K. Skramstad, Chief of Special Projects, National Museum of History and Technology, and which dealt this year with the theme of ethnicity. Dr. Cary Carson, Coordinator of Research of the St. Mary's City Commission and Adjunct Scholar of the Smithsonian Institution, again gave his seminar in "Historical Uses of Vernacular Architecture" during the spring semester. Dr. Paul Kleppner, Visiting Postdoctoral Research Associate attached to the American Studies Program, gave a year-long seminar on American voting behavior in the nineteenth century. A Work-Study Program in Historical Archaeology, offered by the St. Mary's City Commission in cooperation with the American Studies Program of the Smithsonian, George Washington University, and St. Mary's College of Maryland, was held from 19 June to 25 August 1972, with participation by graduate students and Smithsonian staff members. In addition to these formal seminars, supervision of individual reading and research projects, thesis direction, and preparation of comprehensive examinations were undertaken by the director and cooperating Smithsonian staff members.

### Office of Academic Studies

The Office of Academic Studies, under the direction of the Board of Academic Studies, administers Institution programs in higher education,

including fellowship and administrative support for pre- and postdoctoral Fellows engaged in independent research, for graduate and undergraduate students in directed research and study assignments, for short-term visitors studying in the Smithsonian's collections, and for departmental seminars.

For academic year 1972-1973, 26 predoctoral and 30 postdoctoral fellowships were awarded. Three of these postdoctoral fellowships were supported by a grant from the National Endowment for the Humanities for research in American Indian studies. For several years the Smithsonian has cooperated with universities in jointly funding fellowships for graduate students pursuing course work partly at their home universities and partly at the Institution. This year two such fellowships were awarded in American Civilization at Georgetown University. In addition one doctoral candidate in the History of Science and Technology is being jointly supported with the University of Maryland. With the continued development of the conservation training program of the Cooperstown Graduate Programs, the Smithsonian anticipates extensive cooperation in offering laboratory experience to Cooperstown graduate students.

Appointments for directed research and study were awarded to 80 graduate and undergraduate students during the year, of which 22 were supported under grants from the National Science Foundation. Many of these students have received academic credit from their home institutions for studies conducted at the Smithsonian.

Two departmental seminars were supported. The number of short-term visitors to the Institution increased during this year, 26 individuals receiving partial or full support.

### Smithsonian Institution Archives

During 1972, the Smithsonian Archives assumed its responsibilities for archival resources throughout the Institution. The *Preliminary Guide to the Smithsonian Archives*, which appeared in September in conjunction with the Smithsonian's 125th anniversary served as an example of how Smithsonian archives should be made known and available for research. The Archivist discussed archival needs with members of numerous bureaus and set priorities.

The Archives' first priority is care of archives in the National Museum of Natural History, which contains a wealth of resources for research in the history of science. Working with curators, the Archives' goal is to publish a full guide to archival and manuscript resources of the National Museum of Natural History. The Archives receives and cares for inactive records, and processes on location those records open to scholars which remain in the Museum for use with the National Collections.



An archives committee was formed in the National Museum of Natural History and the National Museum of History and Technology. Archives staff continued to develop computerized finding aids with the Smithsonian Information Systems Division. In summer 1972 the Archives supervised two deaf students from Gallaudet College in study of archival administration.

Other projects during 1972 included a survey of administrative office records; supervision of arrangement and microfilming of the Registrar's accession records; appraisal of records at the Astrophysical Observatory; processing 125 cubic feet of National Zoological Park records; and submission of the Smithsonian's first report to the *National Union Catalog of Manuscript Collections*.

### Office of Seminars

Improved public understanding of the international and research bases of modern science was the aim of two major efforts of the Office of Seminars in 1972. One was the establishment of an advisory committee to serve the Secretary in his capacity as chairman of the December 1972 meetings in Washington of the American Association for the Advancement of Science. The other was working out arrangements for co-sponsorship, by the Smithsonian and the National Academy of Sciences of an international symposium, "The Nature of Scientific Discovery." The symposium is scheduled for 25-27 April 1973 in commemoration of the 500th anniversary of the birth of Copernicus. A joint program-planning committee under the chairmanship of Professor John Wheeler, the Princeton physicist, was appointed to consider recommendations of a larger Smithsonian consultative panel. United States observance of the Copernican Quinquecentennial was being coordinated with UNESCO, and financed by contributions sought from foundations and corporations. Professor Owen Gingerich of the Smithsonian Astrophysical Observatory and Harvard University was named editor of the symposium volume—one of several multimedia educational materials to be produced by the symposium. (The 1969 symposium volume, *Man and Beast: Comparative Social Behavior*, continued to prompt book reviews and sales to colleges.)

"The Educational Uses of Museums" was the theme of lectures given by the Director of Seminars in five Asian countries in October-November 1971 under auspices of the Bureau of Educational and Cultural Affairs of the Department of State. He spoke to museum officials and professional societies in South Korea, Taiwan, Hong Kong, Malaysia, Singapore, and Indonesia, returning via the University of the South Pacific in Fiji and the East-West Center, Honolulu. Films from the Smithsonian's Festival of Folk Life on the Mall and the Anacostia Museum illustrated the lectures.



The Office of Seminars was responsible for organizing and coordinating the celebration of the 125th anniversary of the Smithsonian 26 September 1971. The occasion is described in a booklet featuring the anniversary address by Secretary S. Dillon Ripley, "Museum Objects, Truth, and Education," to be published by the Smithsonian Institution Press. The introduction was prepared by Wilton S. Dillon, who served as general chairman.

An eight month seminar series, "Man's Internal Environment," supported by a grant from Dr. William D. Davidson, M.D., President, Institute for Psychiatry and Foreign Affairs, explored research in the medical and behavioral sciences relevant to understanding human capacities to control problems of population, pollution, and violence.

Throughout the year distinguished scholars addressed the Smithsonian staff and the general public. Governor Rolf Edberg, Swedish statesman and author (*On the Shred of a Cloud* and *At the Root of a Tree*) spoke on "Man and His Shrinking World," the text of which appeared in the *Congressional Record*. Dr. Avraham Biran, director of antiquities in Israel, described recent archeological excavations in the Near East, and Dr. Caleb Olaniyan, Nigerian biologist, spoke on the ecology of brackish water in West Africa.

The Office also served as a resource for helping to plan or participate in seminars, conferences, and symposia in other institutions. The director opened a faculty seminar series at the University of Alabama with an address on "Man and His Institutions." He spoke on "Anthropological Perspectives on Violence" before the American College of Psychiatrists, the Psychiatric Society of Washington, and the Department of Psychiatry, Harvard Medical School. As president of the Anthropological Society of Washington, he presided over a series of programs on "Ethnicity and Ethnic Categories" held at American University and Catholic University. The Office has been used also by the Department of State for discussions with university officials about the future of area studies in the United States and to cooperate with the American Academy of Arts and Sciences in planning the 1972 Oxford Pugwash conference on science and world affairs.

In 1972 the director became president of the board of directors, Institute of Intercultural Studies, American Museum of Natural History, New York; secretary, board of trustees, Phelps-Stokes Fund of New York; and adjunct professor, University of Alabama.

## SPECIAL MUSEUM PROGRAMS

The Smithsonian has maintained its continuing concern for achieving the objectives envisioned by all museums. Through funding of the National Museum Act programs, for the first time in fiscal year 1972, the Smithsonian was able to provide increased technical aid and assistance to museums throughout the United States and abroad. The Advisory Council on National Museum Act programs developed guidelines and procedures for applying for and receiving grants of funds to advance the museum profession through research, publication, and training. Sixteen such grants were awarded in fiscal year 1972.

Through United States membership in the International Centre for the Preservation and Restoration of Cultural Property (Rome Centre), which was authorized by the Congress, strides are being made on an international basis to develop new techniques for the conservation of monuments and works of art and for the training of conservators and preservations.

The Smithsonian also continued to support the common objectives of the American Association of Museums and of the United States National Committee of the International Council of Museums.

The Office of Exhibits Programs contributed substantially to the educational aspects of all our exhibitions through imaginative techniques in presenting information. An excellent example in fiscal year 1972 dealt with the highly controversial subject of drug use and misuse; the exhibit was titled "Drugs: A Special Exhibition," and has evoked much interest and many questions.

The Conservation-Analytical Laboratory continued to develop various techniques for conserving and analyzing historic objects, advising numerous inquirers on methods to assist them in identifying problems concerned with artifact preservation.

The Smithsonian Institution Libraries, in addition to their normal services, again served a clinical function in formal library education, cooperating in a predoctoral fellowship, a course on research methodology, and joint cooperation in library studies with library schools of nearby universities.

The Office of the Registrar reported on the continuing public awareness as evidenced by the multitude of inquiries received on a variety of subjects.

The distribution of United States publications through the International Exchange Service served to exchange information with organizations in more than 100 countries. Exchange bureaus similar to the Smithsonian International Exchange Service directed more than 100,000 publications for distribution in the United States.



Through these and other related activities, the Smithsonian is providing needed services that have become increasingly appreciated by the museum profession.

### Office of Smithsonian and National Museum Programs

During the fiscal year, the Office of Museum Programs changed its name to reflect a broad program of assistance, research, and information in museum problems and in operations of museums throughout the United States and abroad. As an innovative program, all projects developed by this Office endeavor to upgrade and advance professional practices.

The National Museum Act, authorized in 1966 received its first appropriation of \$600,000 in fiscal year 1972. In accordance with the appropriation legislation, the National Endowment for the Arts and the National Endowment for the Humanities each received \$100,000 from the above sum. Through the National Museum Act the Smithsonian Institution is able to provide technical aid and assistance to museums throughout the United States and abroad. Funds may be granted for specific proposals that will advance the museum profession either through research, publication, or training. An Advisory Council met for the first time on 10 November 1971 to recommend guidelines and procedures for granting these funds. Science, history, and art museums, as well as museum-related organizations, are eligible to apply for grants.

Sixteen applications were funded including, for example, support for the six regional Museum Conferences, the development of a curriculum in museum studies, three in-service seminars in museum administration, a consultation service for small history museums, five in-service seminars on history museums and historic house operations, internships in conservation techniques, a publication: *The Interpretation of Historic House Museums*, an international exchange program for museum professionals, an apprentice program for museum technicians and a publication: *Guide to Historic Preservation Historical Agencies, and Museum Practices: A Selective Bibliography*.

The office continues to receive innumerable requests from museums for technical assistance. Such questions as (1) how to raise funds, (2) how to create an exhibition program, (3) how to organize an education program, (4) how to train museum personnel, and (5) how to care for collections are most frequently asked.

Continuing a tradition of exchange of ideas, this office has supported directly a number of other important programs, such as, (1) a Conservation Information Project which will produce approximately 100 video- and audiotapes on conservation techniques, practices, and problems; (2) a Systematic Biology Conference for the Development of a National



Program on Resources and Resource Management; (3) a special three day symposium on psychological and sociological studies of the museum environment and the publication of the proceedings of this meeting; and (4) the Museum Data Bank Coordinating Committee, which studies the interphase and cooperation between various museum computer programs.

As a special project this year, the Smithsonian Institution opened its Drug Exhibit. This office sponsored an adjunct activities area in which panel discussions, lectures, live theatrical performances, film shows, and other presentations on drugs were held. This added dimension to the exhibition provided an excellent opportunity for the museum visitor to receive more information on drugs and enrich his museum visit.

### Office of Exhibits Programs

The Office of Exhibits Programs—restructured and more efficient—produced more than 200 separate exhibits and exhibits-related projects in fiscal year 1972. The professional resources of the OEP assisted virtually every Smithsonian area from the Anacostia Neighborhood Museum to National Zoological Park.

A special exhibition in the Great Hall of the Smithsonian Building heralded the Institution's 125th anniversary, while "Drugs—A Special Exhibition" created nationwide interest for its unique multifaceted commentary on a current social crisis. Our Restless Planet, a permanent hall of physical geology, opened in the National Museum of Natural History; and development progressed on "It All Depends," a major exhibition on environmental responsibility that will open in 1973. The popular Insect Zoo was among the special exhibitions at Natural History.

The new, permanent Monetary History and the Graphic Arts halls were completed in fire-damaged areas of the National Museum of History and Technology; the remaining galleries—Philately, News Reporting, and Photography—will open in fiscal year 1973.

The first new-concept National Air and Space Museum exhibitions, "Ballooning" and "World War I Fighters," opened in the Arts and Industries Building.

The Office of Exhibits Programs contributed substantially to the new Renwick Gallery and to several major SITES presentations, including "Greenland."

The death of John E. Anglim (23 May 1972) was a grievous loss to the entire museum world. In large measure, he had been personally responsible for the development of exhibits at the Smithsonian, and had trained or advised many of today's exhibits specialists.

## Conservation-Analytical Laboratory

Conservation effort within our confining walls has reduced the backlog of unstarted requests to about 70. Upon request we have advised twelve bureaus, other museums, and about five hundred enquirers on safe environments for many different kinds of objects and on methods of mounting and cleaning them. Documents, graphics, and objects of fibers, leather, metal, stone, and wood, ranging in date from prehistoric to the present and in culture from Ancient Chinese to Cosmonaut, have been collected or excavated, cleaned, repaired, and chemically stabilized. Causes of damage have included accident, corrosion, unchecked decay and insects.

Members of the staff have attended courses in paper conservation and in use of the polarizing microscope for fiber and pigment identification; shared in an encounter between paper conservators and scientists; organized a conference section on spectrographic techniques in the Museum Laboratory; and lectured regularly on conservation to fifty interested persons and irregularly to numerous special-interest groups, as well as maintaining active relationships with national and international organizations concerned with artifact preservation.

Analytical facilities have been supplied for curators to about 270 samples, resulting in 5600 elemental and other analyses, 1150 of them on medieval glass by neutron-activation techniques, 4000 on materials of all kinds by UV spectrography, 500 by X-ray fluorescence analysis. Pigments, minerals, corrosion products have been identified by X-ray diffraction and infrared spectrophotometry—used also to identify commercial materials proposed for long-term contact with artifacts. The structures of metals and layering of paints on religious objects, decorated gourds, and transport vehicles have been studied in cross-section at various magnifications.

## Office of the Registrar

This year the Office of the Registrar's activities encompassed again its traditional roles as record keeper for the museums and as service office for the Institution providing assistance to the staff and public in such matters as mail distribution, shipping, customs procedures, official travel, and public inquiries.

A long overdue project expected to take several years for completion was begun in cooperation with the Smithsonian Archives to microfilm the Office of the Registrar's holdings of accession records. These irreplaceable original records are the basic documentation of the National Collections, dating from the establishment of the National Museum. They are not duplicated elsewhere, and their safety has been of increasing concern.



Twenty-nine hundred and twenty-seven accession memoranda covering the acquisition of a much larger number of individual items for the collections were recorded during the year. Some two million pieces of mail were handled in serving Smithsonian personnel in the four buildings on the Mall and in various offices in other parts of the city. Shipments processed by the office numbered 24,433 pieces totaling 1289 tons, and involved over a hundred customs entries. Passports, visas, and other diplomatic travel documents were obtained for approximately three hundred official travelers. Public awareness of the Institution continues to be evidenced by the lively pace of inquiry mail on a variety of subjects and in response to Smithsonian programs.

### Smithsonian Institution Libraries

All recorded use of the Libraries increased in fiscal year 1972. User contacts were up 17 percent to more than 47,000, and circulation increased 34 percent. About one-quarter of the material used was borrowed from other libraries. The cataloged collections grew by nearly 15,000 volumes.

The General Library was administratively reorganized, with services to the bureaus featured separately from the general services. A Technical Processing Center was established to combine the acquisitions and cataloging work under one supervisor. An outstanding special librarian was recruited to fill the newly created position of head of the National Air and Space Museum Branch Library, and three positions were added to the service staffs for branches in the National Museum of Natural History and the National Museum of History and Technology.

Space modification for better collection management and flow of materials was begun in three locations: a rare book room in the A&I Building, a stack area in the S.I. Libraries Center at Lamont Street, and a decking over of the cataloging area in the Natural History Building.

The Libraries again served a clinical function in formal library education, cooperating in a predoctoral fellowship, a course on research methodology, and a field work project. Five students were involved from the library schools of the University of Maryland and the University of Washington.

Automation proceeded slowly. All serials titles were stored in the computer and output was obtained on microfilm. At year's end the Director established an ad hoc study group for a Federal Library Service Center to develop cooperative automation projects among federal libraries.



## PUBLIC SERVICE

The Office of Public Service has the distinction of beginning each of its fiscal years with a lively event—the Festival of American Folklife sponsored by the Division of Performing Arts. The fifth annual festival featured the state of Ohio, and for the first time had a major contribution on the American laborer from the AFL-CIO. Thousands thronged the Mall to watch bakers, iron workers, meatcutters and other union workers perform their skills. Indian tribes from the Northwest presented their traditional arts and discussed contemporary problems in workshops and seminars. The division is conducting its fieldwork for future years' festivals with an eye toward the Bicentennial where there may be a festival lasting several months, and featuring several states.

Two new publications were begun this past year to keep the public aware of the Smithsonian's many diverse activities. The Office of Elementary and Secondary Education began publishing on a bimonthly schedule the *Smithsonian Institution Bulletin for Schools*. It is sent to all teachers in the metropolitan area to keep them informed of and involved with exhibits and programs of special interest to their students. OESE has also designed several new tours in the museums where students are encouraged to study a few selected exhibits in depth.

The *Smithsonian* magazine continued into its third successful year with a National Associates membership of well over 300,000. During the past year there were more than 34 articles either about Smithsonian exhibitions or written by staff members. Our National Associates program provides special services to its members as announced through the magazine, such as domestic and foreign study tours, and a book service, whereby Associates can buy curator-selected books at a discount. The *Smithsonian* magazine thus serves to educate and entertain its readers, and provides information about tangible benefits available only to Smithsonian Associates.

The Smithsonian Institution Press designed and published several new publications relating to exhibits this past year. The Press has found that in order to sell adaptations of exhibit-related material to schools, they must be part of an audiovisual package, so the Press is exploring with other divisions of the Institution the fields of cassettes, recordings, and films for future projects. Three editors won Federal Editors Association Awards for outstanding government publications, and Stephen Kraft won both first and second awards of the Art Directors Club for his design work. The Press shipped a total of 266,000 publications during the year.

"The Evolution of a Community" at the Anacostia Neighborhood Museum was another of its successful exhibits suggested and planned by

the Neighborhood Advisory Committee. The History of the community was conveyed to the visitor through old photographs, films, and taped interviews with older residents of Anacostia. The Neighborhood Museum has prepared a major proposal for Bicentennial funds to construct an Exhibits Design and Production Laboratory. The laboratory will be used to train minority people in the planning, design, and production of exhibits and related educational materials. It will, in addition, strengthen Secretary Ripley's vision of the Museum as a center that answers person-to-person needs and involves itself at all levels of the community.

### Smithsonian Associates

The year was a period of review and consolidation of Associates activities. National and resident programs were brought together under the management of an executive director, and a Corporate and Individual Membership program was formed.

In October the recently established National Board of the Smithsonian Associates met under its chairman, Regent Thomas J. Watson, Jr. This group of industrial and citizen leaders is committed to assisting the Institution extend its appeal to business organizations for private financial support. In return, the Institution is preparing to render counsel and appropriate assistance to corporations in employee education and support of local museums and similar institutions. By June the Board's membership of 27 persons had begun a corporate member solicitation. Pilot projects were being investigated in Peoria, Illinois, and San Francisco, California. In the fiscal year, ten Corporate Members contributed \$56,740 to the Institution's general funds in addition to gifts of objects and project support.

The individual membership (persons making larger annual contributions) brought the Institution \$15,500 in donations. Members in the Washington, D.C., area enjoyed participation in several important occasions during the year.

Study of the relations between national and resident members led to an extensive review of the Resident program and survey of the local membership. As a result, plans were made to extend the scope of resident programs to serve a larger part of the National Capital area population, and to experiment with off-Mall programs. *Smithsonian* magazine, formerly an optional benefit of resident members, would become the journal of all Associates at no increase in cost.

The Members' Reception Center was staffed and furnished in a room adjoining the Great Hall of the Smithsonian Institution Building to provide increased information services to members and museum visitors. A devoted group of 100 volunteers operated information desks in Smithsonian



museums and carried out 193 service projects. Another 65 volunteers were placed in special projects by the Center.

In its sixth year the Resident Program served more than 15,000 members. It continued to provide opportunities for people to explore the collections, learn about the museums' research, and study with both Smithsonian and visiting scholars and craftsmen. During the year, more than 2000 adults and young people took 82 courses in a variety of subjects ranging from Near Eastern archaeology and Peruvian art to American political history, oceanography, and bird behavior. Adults participated in new studies of Washington, D.C., and an innovative course in city-building for young people was developed. In addition, more than 1200 members created their own works of art in 38 craft workshops.

Over 140 special events were offered including openings, luncheon talks, lectures, films, museum tours, field trips, day tours, fashion shows, concerts and other performing arts attended by more than 25,000 persons. Members had fun making stone-age tools, learning of the Mall's history, and sharing some new facts about Nefertiti revealed by a major computer-research project. Some 2000 young people also participated in six children's programs, and Associates families undertook 39 field trips led by Smithsonian scholars.

The Women's Committee pursued nearly two dozen projects to aid the Institution and managed two benefits; a fashion show of Sikkimese clothing and an old-fashioned Christmas dance. Proceeds from these events provided scholarships for 208 young people in Associates classes, supported the Insect Zoo, and helped a visual education program at the Anacostia Neighborhood Museum.

### Office of Public Affairs

A significant event for the Office of Public Affairs during the year was the launching of a new quarterly *Smithsonian Institution Research Reports*. First published in May for distribution to news media, libraries, and other academic institutions, the quarterly will be a means of focusing attention on the diverse interesting and important work done behind the scenes by scientists and curators throughout the Institution. In the past twelve months, the OPA News Bureau wrote and distributed a record total of almost 300 news releases and more than 100 radio announcements. The bureau also played major roles in publicizing the opening of the Renwick Gallery and the openings of a number of major exhibitions. "Radio Smithsonian" began its third year in September 1971, and is now heard over 84 stations in 33 states. Work proceeded in the past year on a new film, *Dilemma of the Museums*, in which various challenges and opportunities before Smithsonian museums are explored. Work has begun on a



second version of *Around the Clock at the Smithsonian*. This film will be used for visitor orientation in the museums. Smithsonian exhibits also have been the subject of a number of films made by various groups for educational and other uses. In recent months, OPA has undertaken a general review of the Institution's aims and goals in the television field. Other OPA activities include publication of the *Smithsonian Torch* and monthly *Calendar of Events*, and revised guides to Smithsonian museums of which more than three million copies were printed. A total of 41,358 callers dialed the Dial-A-Museum answering service, and 100,138 dialed the Dial-A-Phenomenon service. In addition, thousands of inquiries from visitors, media, and citizens throughout the world were handled by the staff of the Office of Public Affairs.

### Office of International Activities

The Office of International Activities fosters new dimensions to Smithsonian programs abroad. In the past year, the Institution's scientific and cultural exchanges with the People's Republic of China, its international art programs, as well as cooperative programs in environmental research and conservation, have received special attention. Specifically, a revised agreement between the Smithsonian and the United States Information Agency was signed supplying that Agency exhibits in the arts. Moreover, the Office is now working actively with foreign embassies in Washington and other foreign organizations to bring exhibitions from abroad to the international exhibition rooms of the new Renwick Gallery.

The Office of International Activities administers the Smithsonian Foreign Currency Program which received an appropriation of \$3.5 million in "excess" foreign currencies for fiscal year 1972 for the support of grants to United States institutions of higher learning for "museum programs and related research in the natural sciences and cultural history." The program has awarded more than \$15 million in foreign currency grants to more than 65 United States institutions of higher learning over the past seven years. Major environmental research programs initiated this year with Program support include two major limnology studies in Yugoslavia, one in India, and one Desert Biome study in Tunisia, the latter, part of the United States contribution to the International Biological Program.

### Division of Performing Arts

The Division of Performing Arts continued to present examples of the American esthetic experience with particular emphasis on illuminating the Smithsonian collections.

The fifth annual Festival of American Folklife featured the state of Ohio and Indian tribes from the Northwest. A notable new feature was a new exhibit which dealt with American workers and was presented with the sponsorship of the AFL-CIO. The skills and crafts of iron workers, bakers, glass bottle blowers, and meatcutters were demonstrated, and workshops explored the relationship of the worker to his union and society.

Noted Jazz scholar, Martin Williams, joined the staff of the Division of Performing Arts to plan and implement scholarly activities, live concerts and a series of recordings dealing with the history of Jazz.

The Perceptions series continued to offer performances by contemporary creative figures, including composer Steve Reich and the improvisational theater group, The Proposition.

The Division of Performing Arts again joined with the John F. Kennedy Center for the Performing Arts and the American Theater Association in the production of the American College Theater Festival, which was housed in the new Eisenhower Theater in the Kennedy Center. The twenty productions ranged from *Oedipus Rex* presented by Southern Methodist University, to the contemporary *365 Days* presented by the University of Minnesota.

The Smithsonian Touring Performance Service continued to provide performances not available through commercial management to museums, colleges, universities and cultural centers throughout the country. The Smithsonian Puppet Theatre completed a full year of operation offering performances of original scripts dealing with museum related themes. A notable success was achieved in the production of *Eureka* relating the adventures of a small boy and his friend as they travel through time and ideas.

### Belmont Conference Center

The Belmont Conference Center has now entered its sixth year of operation, with the goal of providing a secluded, gracious setting for small groups needing an exclusive and relaxed working atmosphere. Through word-of-mouth recommendations by previous guests (Belmont does no advertising of any kind), the Center finds itself host to more groups each year: forty-five in fiscal year 1969, fifty-eight in 1970, sixty-nine in 1971, and seventy-nine in 1972; over 1650 participants have been welcomed in the last twelve months.

Belmont accepts conferences from all types of groups and this year has received guests from 35 government agencies, 53 colleges and universities, 5 foundations, 2 Presidential commissions, and 15 private groups. An astounding 40 percent of these groups has been holding conferences at Belmont for at least three of the past five years.



Twenty-four residents can be accommodated at Belmont, with facilities for meetings and meals for thirty people. The 240-year-old manor house is now air conditioned, and ever-continuing improvements make the residence and 365 surrounding acres of lawns, fields, and forests more enjoyable each year. The availability of such a beautiful location, together with the advantage of easy access to Washington's National and Baltimore's Friendship airports, has proven most convenient for Belmont's guests.

### Anacostia Neighborhood Museum

Black scientists and their achievements from early days to the present time were honored in the Anacostia Neighborhood Museum's exhibit "Science: Man's Greatest Adventure." The life stories of seven of the contemporary scientists were compiled into a booklet entitled *They Were Determined* and distributed to junior and senior high school tour groups, libraries, and science supervisors in the District of Columbia public schools.

Old photographs, films, and tape recordings traced the history of Anacostia in the exhibit "The Evolution of a Community." Visitors walked through replicas of the Old Douglass Hall, Birney School, a section of a neighborhood church, and a family parlor of the early twenties. Douglass Hall served Black residents of Anacostia as a meeting place and social center in the early 1900s. Interviews with oldtime residents were recorded on tape by the staff of the Museum's Center for Anacostia Studies. The exhibit was conceived by the Neighborhood Advisory Committee of the Museum.

The Mobile Division has been able to increase its services to the community with the acquisition of video-tape equipment that will be used to give an increased dimension to the Museum's exhibits and create a video-record of its programs.

A children's room now occupies a section of the exhibit area. Demonstrations of how soap, butter, ice cream, taffy, and candles are made together with multimedia presentations on Black history are among the various programs offered to children by the Museum's education department.

### *Smithsonian*

*Smithsonian*, the Institution's national magazine, began its third year of publication with the April 1972 issue. At the close of the fiscal year, net paid subscriptions had climbed well past 300,000. Subscribers are National



Members of the Smithsonian Associates, and thus form a reservoir of interest and support for the Institution.

Although the magazine is not a Smithsonian "house organ," it is appropriate that much of the editorial content is generated by the activities or interests of the Institution. During the last year there were 34 major articles either directly related to Smithsonian exhibitions and research projects or written by Smithsonian staff members. Subjects ranged from the paintings of the neglected Black artist William H. Johnson, given his first major exhibition by the National Collection of Fine Arts last fall, to Dr. Dale W. Jenkins' sobering study of toxic metals in the environment (not to mention the first color photographs of the National Zoological Park's most celebrated acquisitions, the giant pandas).

Non-Smithsonian authors who contributed important articles during the year include Isaac Asimov, Lionel Casson, Emmet John Hughes, Margaret Mead, John Bakeless, and Jacques-Yves Cousteau. Among the photographers represented were such well-known names as Dmitri Kessel, Loomis Dean, and Farrell Grehan, and there were special commissioned drawings such as Robert Osborn's.

*Smithsonian* has become a means of communication between the Institution and its constituency, and is a major item in the benefits to the National Members of the Associates. Other benefits are foreign and domestic study tours and discounts on items sold in Museum Shops and on the publications of the Smithsonian Institution Press. These privileges will extend to more and more people as the magazine continues to acquire new readers.

### Smithsonian Institution Press

Progress continued this year in the development of our museum-related publications program. Two attractive booklets were produced for new exhibits in the National Museum of Natural History and were to be made available at the exhibit sites. Unfortunately, our experiment with an honor system dispenser for a ten-cent pamphlet was an unqualified failure. Until we can devise foolproof vending devices, we shall have to be content with pamphlets located only in the Museum Shops, often far away from the exhibit and the moment of highest visitor-interest.

Several attempts were made during the year to make arrangements with commercial publishers for the adaptation of our museum-related pamphlets (*Our Restless Planet*, *All About Pandas*, *If Elected*) to the public school market. Educational publishers prefer "packages," including audio-visual programs, with the book or pamphlet as one component. The Press recommends a coordinating panel for the various Smithsonian offices

which are already, or soon will be, producing recordings, cassettes, films, and other items that could make up a marketable educational package.

Three Press editors won Federal Editors Association Awards for Outstanding Government Publications in 1972: Louise Heskett for *Apes and Angels: The Irishman in Victorian Caricature*, Joan Horn for *History of Letter Post Communication Between the United States and Europe*, and Ernest Biebighauser for *Hold the Fort! The Story of a Song from the Sawdust Trail to the Picket Line*. Stephen Kraft won both the First and Second Awards of the Art Directors Club of Metropolitan Washington for *The Hand of Man on America* and *Music Machines—American Style*.

Production costs of 112 publications were funded by federal appropriations in the amount of \$412,569.39; 16 were supported wholly by Smithsonian Institution private funds in the amount of \$73,379.16. The total publications list for 1972 is given in Appendix 5. The Press warehouse, the Superintendent of Documents, and George Braziller, Inc. (The Press' sales and distribution agent) shipped, on order and subscription, a total of 265,903 publications during the year. In addition, 293 recordings were distributed by the Press.

### Reading Is Fundamental

The National Reading Is Fundamental program is now in its fifth year as an independent unit under Smithsonian sponsorship. RIF's purpose is to motivate disadvantaged children and adults to want to read, by making available a wide variety of interesting and inexpensive paperbacks. The two motivational forces built into the RIF program have proven to be sound educational practice—freedom of choice and pride of ownership.

The number of local RIF projects has grown from 18 in 1971 to 55 in 1972, with many more in the developing stage. Seven hundred and fifty thousand children have received 2.75 million RIF books.

A national advertising council campaign, started in September 1971, has elicited a gratifying response from professional educators and the public.

National RIF acts as liaison with the publishing industry, federal and local governments, schools, and libraries about book programs and provides technical assistance and information to those interested in developing a local project. The sponsoring groups throughout the country are responsible for local funding, selection of book titles, and distribution.

The Edna McConnell Clark Foundation has committed up to \$1,150,000 to RIF over a three-year period. The grant covers administrative support for National RIF as a Smithsonian activity. Policy guidance is provided by the National Advisory Board composed of 44 distinguished Americans. The founder of RIF is Mrs. Robert S. McNamara; Secretary Ripley serves *ex-officio* as a member of the RIF Board.

## Office of Elementary and Secondary Education

A variety of new learning opportunities for students has been introduced this year under the administration of this Office for the museums on the Mall, pertaining both to the scheduled visits by school groups and to new services being extended to the schools.

New techniques have been developed in the presentation of several additional lesson tours in the museums of Natural History, and History and Technology. Students are encouraged to study in depth a few selected exhibits and artifacts to draw inferences from their observations of these items, and to develop some general concepts concerning them. In this way students are guided through an experience of discovery, using not only the objects on exhibit but touchable objects as well. The fourth season of utilizing volunteer high school students as guides in the Mall museums during the summer months was successfully implemented by the "Info-71" program.

First efforts to extend the resources of the Smithsonian by directly reaching out to the classroom have been undertaken. Materials in kit form have been assembled and released on loan to the schools. A demonstrations workshop on American folk musical instruments has been provided in many classrooms of the metropolitan area under the direction of a staff associate with trained volunteers. Publication of the *Smithsonian Institution Bulletin for Schools* was inaugurated this year on a bimonthly schedule to provide a full range of timely information on activities at the Smithsonian with particular interest to teachers and students.

Representatives of the volunteer corps and members of OESE met in workshop sessions with elementary-level curriculum specialists from the six school districts of the Washington area during the months of April and May.



## ADMINISTRATIVE MANAGEMENT

In July, a Deputy Under Secretary, Robert A. Brooks, joined the staff. During the year, in addition to participating in the full range of activities of this Office, he undertook independently special assignments from the Secretary and the Under Secretary. At the Secretary's request, the Smithsonian Institution began a major effort to identify, define, and resolve significant operating issues which are of concern to all Smithsonian program and support organizations. These relate to current operations and to future growth and development. A small working group was established for this effort under the supervision of the Deputy Under Secretary. This activity represents a major new step in the decision-making process. The active involvement of all bureaus and offices is required to help bring into clearer focus the Institution's resource management priorities and alternatives.

In February, the Director of Support Activities was designated by the Secretary to serve as liaison for the new Fort Pierce Bureau in Florida. In addition to this interesting assignment, the Director continued to supervise and provide management leadership to the support groups that report directly to him. The International Exchange Service was added to this group during the year. The Smithsonian Institution Libraries also was included, pending the appointment of the Assistant Secretary for Museum Programs. The Libraries' report appears under "Special Museum Programs." Brief descriptions of the major activities of the other units in this group are given below.

*Buildings Management Department* carried out its basic responsibilities to operate, restore, renovate, maintain, and protect Smithsonian buildings. To cope with increased workloads without attendant expansion of personnel resources, a variety of management improvements were made. These included the development and implementation of standards for housekeeping and maintenance functions; installation of new equipment and systems for telephone and telegraph communications; introduction of a cargo shuttle to move small shipments among Smithsonian buildings in the Washington area; re-emphasis on the need for regular and complete coordination of activities; implementation of more effective procedures and operational methods, and clarification of the scope of authority and responsibilities at all levels in the Department.

Major projects underway during the year included supervising the construction contract for the Joseph H. Hirshhorn Museum and Sculpture Garden; planning for the new National Air and Space Museum Building; restoring and opening the Renwick Gallery; altering interior of the Arts and Industries Building; renovating library space in the Natural History

Building; installing a planetarium exhibit in the Air and Space Building; and developing plans and specifications for construction of the new Ramsey Building at Silver Hill. Small projects undertaken included constructing and renovating office and laboratory spaces; modifying heating, ventilating, and air-conditioning equipment; supporting exhibits construction and installation; and providing extensive design work for other proposed projects.

Measures taken by the Protection Division to achieve maximum security in face of increased incidents of crimes, harassments, thefts, vandalism, and bomb threats included: expansion of the Guard training program; adjustment of post assignments; and employment of more electronic security and fire prevention systems.

Support of other Smithsonian programs remained at a high level, with approximately 20 percent of the Department's productive manpower devoted to these activities. The special events portion of this effort required over 6000 manhours.

The Safety Management Office reported that the 12 percent reduction in lost-time injuries may be attributed to the excellent support given by Smithsonian managers and employees to the "ZERO IN on Federal Safety" program.

In the area of personnel management, a new union contract was negotiated, the awards program was used to greater advantage, and training was intensified throughout the Department.

*Information Systems Division* develops and coordinates the use of automatic data processing support throughout the Institution. Advances continued to be made through computer utilization in the areas of administration, management of national collections, and scientific research, and most bureaus increased their use of this support. Research was conducted to enhance the ways of entering data into the computer and the ways of obtaining better output products, such as optical character recognition for entering data directly from a printed page; terminal devices to enable telephone communication with the computer; and computer output to microfilm and microfiche; as well as plotted maps and other graphical presentations.

Individual research assistance to curators and scientists expanded and broadened in scope as the Division made available additional mathematical techniques and software packages.

New developments and refinements enhanced support for the management of the national collections in history, art, and science. A recently developed, but not yet completed, generalized information management package called SELGEM has aroused much attention within and outside the Institution because of its potential as a standard for the computerized management of collections.





Honeywell Information Systems and Smithsonian representatives at the ribbon-cutting ceremony after the installation of the Honeywell-2015 computer system in the Information Systems Division.

As a service to the museum and university community at large, the Division published information about the SELGEM system in its technical bulletin, *Smithsonian Institution Information Systems Innovations*. The "Innovations" series acquaints the reader with automated systems and procedures specifically designed to solve collection and research problems in museums and herbaria.

Though no totally new systems evolved during the year, many specialized systems for administration, curation, and analysis were expanded to meet changing requirements.

The new Honeywell-2015 computer system, purchased by the Smithsonian Institution, was operational in November.

*Management Analysis Office*, formerly the Administrative Systems Division, continued to work with members of the Executive Committee and heads of organization units on management improvement projects. In June, two of the analysts were assigned to assist the Deputy Under Secretary in helping to resolve a variety of specific management issues.

During the year, 182 management issuances and one handbook were researched, coordinated, and published, and 5 handbooks and 17 major issuances were in various stages of completion at year's end. In addition to the management surveys and studies required to accomplish this, the staff participated in 25 additional studies which resulted in improved management and operations.

One internal directory and 13 external publications were updated and 16 external special management reports were completed.

In June, a contract was awarded for the preparation of a manuscript copy of a *Smithsonian Correspondence Handbook*.



The Forms Management Unit provided four million copies of 690 forms to 85 separate Smithsonian units. A feasibility study for an ADP program to support forms management and control also was completed.

*Office of Equal Employment Opportunity.* Under the personal leadership of the Secretary, the Smithsonian's Equal Employment Plan of Action was revised. The expanded plan provides for improved recruiting practices and programs for career advancement, including methods for acquiring specific educational and experience requirements, and for gaining information about educational opportunities available in the Washington Metropolitan area. The realistic program is designed to assure equality of opportunity in all official actions of the Institution.

Additionally, a Smithsonian Women's Council was established to provide women employees of the Institution a forum for the expression of mutual interests. This channel facilitates communication and encourages action by the exchange of information and ideas and lends cooperative strength to individuals and groups seeking to promote the good of all Smithsonian employees.

During the year, 64 consultations were conducted with individual supervisory staff members on matters relating to their selections of candidates for promotion under the Merit Promotion Program. Some 34 informal complaints were discussed and reviewed and, as factual information was developed, the necessary adjustments were accomplished. One formal complaint was settled to the satisfaction of the complainant, and one hearing decision is pending.

Three special training sessions were conducted for supervisory employees. The discussions stressed the necessity for eliminating personal prejudices, indifference to the needs of employees, and favoritism in supervisory practices.

*Office of Personnel Administration,* following its consultative role in advising and assisting all Smithsonian staff in creating an environment for individual growth, has as its major thrust to give responsive and positive assistance to program directors and managers. The principal emphasis during the year was to bring managers and employees closer together to develop a more viable relationship. The Office also concentrated on personnel program development and analysis as a beginning toward assuring that our personnel management effort serves the needs of the Institution while fully recognizing that our most precious resource is our employees.

Labor-Management Relations continued to represent a significant effort. New contracts were negotiated with the National Zoological Park and with the Buildings Management Department. An election for union representation resulted in the Office of Exhibits Programs' employees voting for union recognition. Informal and formal meetings between labor

and management were encouraged, and both groups are getting closer together in recognizing legitimate needs of employees while becoming more aware of the needs of the Institution.

An Executive Manpower Resources Board was established to assist in identifying and developing high potential employees so they will be able to assume greater responsibilities.

A Learning Laboratory was established to provide employees an opportunity to gain basic skills to assist in their self-development. Over 150 employees have enrolled in individual instruction which allows them to develop at their own pace.

Additional improvements included the beginning of an alcoholism program to assist employees and managers in coping with this complex illness and a revised merit promotion program. A complete survey was made of the Institution's Health Services used by employees and visitors. The awards program was emphasized and managers were encouraged to be more aware of employee contributions.

Improved visible recognition with support of top management has contributed to a more productive, better motivated workforce. These accomplishments were especially significant in a year when employment cutbacks and average grade controls imposed difficult burdens on management. The Office of Personnel Administration in conjunction with the Office of Programming and Budget and the excellent cooperation of managers withstood these restrictions without seriously affecting employee relations.

*Photographic Services Division* was reorganized in 1972. All like-type work was consolidated into one physical area and maximum production techniques were applied. A backlog of 700 jobs was reduced to approximately 120, production units increased by 68 percent, and job time was reduced from two to three months to one to two weeks.

The Sales Section provides students, educators, scientists, and the general public with photographs of the Smithsonian collections. Its mission is to insure maximum "diffusion of knowledge" through the visual media. During the first six months, the pay order backlog was eliminated and the average processing time was reduced from two months to approximately two weeks. Sales increased 81 percent over the same period in 1971.

The Library Section centralized 200,000 negatives into temperature- and humidity-controlled space in the History and Technology Building. Sixty-five thousand negatives were pulled from the files to fill customer orders. Fifteen thousand negatives and 1000 transparencies were numbered, captioned, and filed; plans were formulated for captioning, indexing, restoring, filing, retrieving, and cataloging all negatives. A comprehensive study was made by the Management Analysis Office to



determine resources necessary to accomplish the above plans. Planning was initiated to put all information into the Smithsonian computer. To the 2000 color slides transferred from the Office of Public Affairs, the Section added 1500 new ones.

The Laboratory Section overcame a tremendous backlog of work. Consolidation of all wet processes in one location resulted in a 68 percent increase in production; the new black and white film processor resulted in a 75 percent savings in film-processing time; print production increased from 120,000 last year to over 200,000 this year; and copy negatives increased from 10,000 to 28,000. The Laboratory produced 28,000 8 × 10 inch glossy prints for the Bureau of Indian Affairs, Department of the Interior, on a contract through the Department of Anthropology. It contributed photographs for the Balloon exhibit; World War I exhibit; Korean Village exhibit; the Arabia Felix show; a Japanese exhibit for SITES; the toy exhibit; the new Numismatics Hall; and the Graphic Arts exhibit.

The Assignment Section also benefitted from the new processing equipment as more time of the photographers was released for studio work. Assignments of interest were The Queen of Sikkim fashion show, visits of Mrs. Tito and Mayor Willie Brandt, unveiling of President Nixon's portrait at the National Portrait Gallery, the Renwick Gallery Opening, the Folklife Festival, the 125th anniversary of the Smithsonian Institution, and Mrs. Richard M. Nixon receiving the giant pandas.

*Supply Division* processed over 33 percent more procurement actions this year than in fiscal year 1971. The successful accomplishment of this workload, with no increases in personnel, is recognized as a major contribution to the achievement of the program goals of all Smithsonian organizations. As in past years, the Division overlooked no opportunity to acquire useful excess government property.

*Travel Services Office* continued to experience growth in its major services, i.e., air and rail reservations booked were up 10 percent; travel itineraries issued up 12 percent; transportation requests prepared up 15 percent; and the dollar value of all transportation purchased was some \$108,000 higher than last year.

Planning data, advisory services, and travel arrangements were provided for the annual Folklife Festival, and for national and international conferences, meetings, and expeditions; e.g., the three-week systematics symposium in Washington, D.C.; archeological expeditions to Yugoslavia, Israel, and Greece; and the international meeting in geology in Novosibirsk, Siberia. Special attention was given to travel arrangements for the Foreign Currency Program of the Office of International Activities.



## INTERNATIONAL EXCHANGE SERVICE

The International Exchange Service is the one program bureau included in the support group. During the year, the Service received publications from approximately 400 United States organizations for exchange with organizations in over 100 countries. Exchange publications weighing over 100,000 pounds were received from foreign exchange bureaus for redistribution in the United States.

More than 450,000 pounds of official United States publications were transmitted on exchange for official documents of other countries. There were eight less recipients of full sets but the number of recipients of the partial sets remained unchanged.

The daily issues of the *Congressional Record* and the *Federal Register* were mailed to 137 foreign libraries in exchange for their parliamentary journals.

Publications were forwarded by ocean freight to 38 exchange bureaus in other countries for distribution to the addressees, and publications were mailed to addressees in countries that do not have exchange bureaus.

Approximately 300 medical and dental organizations exchanged their duplicate journals and books through the Service with libraries in other countries.

A strike of the East Coast longshoremen in October and November adversely affected operations.

The Service is again accepting packages of publications for transmission to the mainland of China.

The Duplicating Section, administered by the Director of the International Exchange Service, reproduces materials for all Washington-based Smithsonian units and for several in the field. The Section's objective is to furnish quality material in a minimum amount of time. Management items reproduced include forms, form letters, administrative directives, organization charts, annual and special budget documents, and the *Smithsonian Institution Directory*. Research support materials include scientific and technical reports, grant applications, information leaflets, preliminary manuscripts, maps, graphs, charts and line drawings.

A serious loss was sustained with the resignation of the chief assistant in October. Inability to fill the resulting vacancy for some six months caused a six weeks backlog of work. This was reduced subsequently to a backlog of some two weeks and further reduction is anticipated with the acquisition this year of a new paper cutter and a new multilith machine. These improvements together with an additional operator planned for the forthcoming fiscal year should increase production and reduce the amount of overtime required.

---

During the year, the Office of Audits, which reports directly to the Under Secretary, issued six audit reports on audits conducted by its staff members. Recommendations made in these reports have resulted in improved management procedures and controls, sometimes pointing to potential dollar savings.

The Office also reviewed and closed out 47 foreign currency grants which were awarded in the total amount of \$3.5 million. The close out of these grants resulted in \$430,000 of unused funds being made available for current research projects.

## NATIONAL GALLERY OF ART

J. Carter Brown, *Director*

The National Gallery of Art, although technically established as a bureau of the Smithsonian Institution, is an autonomous and separately administered organization. It is governed by its own Board of Trustees, the statutory members of which are the Chief Justice of the United States, (chairman), the Secretary of State, the Secretary of the Treasury, and the Secretary of the Smithsonian Institution, all *ex officio*; and five general trustees. Paul Mellon continued as president of the Gallery and John Hay Whitney as vice-president during fiscal year 1972. The other general trustees continuing to serve were Franklin D. Murphy, Lessing J. Rosenwald, and Stoddard M. Stevens. The Gallery had approximately 1,586,550 visitors during the year.

During the past year, the excavation for the East Building was in large part completed, and the beginning of the foundation mat was laid. Excavation under the east end of the present building was carried out in preparation for the underground connection between the existing and the new structures. Structural and mechanical plans were completed and released for bid on 1 May.

A number of important acquisitions were made. Among them were twenty-two works from the W. Averell Harriman Foundation in memory of Marie N. Harriman, including *At the Water's Edge* by Paul Cézanne, *Words of the Devil* by Paul Gauguin, and *Lady with a Fan* by Pablo Picasso. Other paintings acquired included *Lozenge in Red, Yellow and Blue* by Piet Mondrian and *Trumpeters of Napoleon's Imperial Guard* by Théodore Géricault. Major sculpture acquisitions include *A Classical Allegory: Victory with the Attributes of Peace*, attributed to Antonio Lombardo; and *Torso of a Young Man* by Raymond Duchamp-Villon.

Major temporary exhibitions held at the Gallery were "La Scala: 400 Years of Stage Design from the Museo Teatrale alla Scala, Milan," "John Sloan," "Rodin Drawings - True and False," and "The Art of Wilhelm Lehmbruck."

With the increase in staff of the Graphics Department, an active acquisition policy was established. During the year, 472 prints and 85 drawings were added to the collection. These will be the subject of a special exhibition in early 1974. There were nine exhibitions installed devoted entirely to the graphic arts, one of the most outstanding of which was that devoted to "Rare Etchings of G.B. and G. D. Tiepolo," held in



honor of Lessing J. Rosenwald. A total of 122 loans were made to institutions in this country.

The Index of American Design circulated nineteen exhibitions in fifty-six bookings and prepared four exhibitions for special showings. Also, 782 sets of color slides were booked by schools, institutions, and clubs. Visitors to the Index numbered 329.

During the fiscal year 1972, the Photographic Archives received 33,680 photographs and negatives. Some special purchases included 345 old and valuable glass negatives from Reali of Florence and 8573 photographs of Mexican Colonial architecture from Judith Sandoval. Noteworthy gifts included the Clarence Ward Archive of 6993 negatives of French Medieval, European, and American architecture and 1198 photographs of paintings from the Samuel H. Kress Foundation.

The Gallery's new multimedia humanities program "Art and Man," published in cooperation with Scholastic Magazines, Inc., reached 6500 classes with more than 1.5 million magazines. As part of the program 128,000 slides, 10,000 recordings, 10,000 filmstrips, and 20,000 media supplements were also distributed.

Films, color/sound slide lectures and traveling exhibitions were distributed by the Gallery's Extension Service to interested schools and community groups in all fifty states and many foreign countries.

Through grants from the National Endowment for the Humanities and the Xerox Corporation, the Extension Service continued this year to distribute Kenneth Clark's thirteen-part film series, *Civilisation*, to a national audience of colleges with enrollments of under 2000.

In March 1972, another National Endowment for the Humanities grant was made to the Gallery for the distribution of a new Kenneth Clark six-part film series, *Pioneers of Modern Painting*, to colleges with enrollments under 2000 and cosponsoring museums and cultural arts groups. The total number of bookings of all materials circulated by the Extension Service was approximately 22,750.

Talks given by the Gallery's Education Department and programs presented in the auditorium totaled 134,321 for 2915 separate events. The Gallery's regularly scheduled programs included Tour of the Week, Painting of the Week, Introduction to the Collection, films, and Sunday auditorium lectures. There were twenty-nine guest speakers who lectured at the Gallery during the fiscal year. They included the distinguished German art historian Ludwig H. Heydenreich, the 21st annual Andrew W. Mellon Lecturer in the Fine Arts, who gave six talks on Leonardo da Vinci.

Twelve new publications were placed on sale through the Publications Service, six of which were catalogs of exhibitions held at the Gallery. Sales posters were published for three of these exhibitions.

Under the supervision of Richard Bales, forty concerts were given in the East Garden Court at 7 o'clock on Sunday evenings. Ten of these were by the National Gallery Orchestra. The Gallery's 20th American Music Festival took place between 16 April and 4 June 1972. Eight world premieres and twenty-four first Washington performances were heard throughout the season. All the concerts were broadcast in their entirety by WGMS, AM-FM in Washington.

To advance the methods used to maintain and preserve its collections, the National Gallery of Art has, for more than twenty years, sponsored a scientific research program at Pittsburgh's Carnegie-Mellon University. Extensive investigations on the harmful effects of light have led to the ability to detect potentially serious forms of deterioration and to the development of adhesives and protective varnishes of improved stability. Advanced methods have been applied in the past year to the study of special sections of the sculpture collection as well as to the enhancement of our ability to characterize the traditional artist's pigments.

# JOHN F. KENNEDY CENTER FOR THE PERFORMING ARTS

Roger L. Stevens, *Chairman*

The concept of a National Cultural Center, first developed in 1958, became reality in 1971 with the opening of the John F. Kennedy Center for the Performing Arts. Thirteen years of assembling the complex mosaic of planning, fund-raising, construction and expectation culminated on the evening of 8 September 1971 when the Opera House opened with Leonard Bernstein's *Mass*. The Concert Hall officially opened the following night with a special performance by the National Symphony Orchestra, under the direction of Antal Dorati, and the Eisenhower Theater took its inaugural bow on 18 October 1971 when the Center presented Ibsen's *A Doll's House*.

With its opening, the Center acknowledged four American Presidents: President Eisenhower, who encouraged and signed the enabling legislation; President Kennedy, who gave ardent support to the planning; President Johnson, who broke ground for the building and signed legislation making the Center the sole official memorial in Washington to the martyred President; and President Nixon, who gave full personal support and much-needed tangible support when he signed legislation authorizing additional federal funding. The Center also acknowledged the public and private support it had received: \$23 million in matching federal funds; \$28 million in private and corporate donations; and \$20.4 million in the form of a United States Treasury loan for construction of parking facilities.

The first season received unprecedented artistic and popular acclaim. At a time when theaters throughout the country faced severe difficulties in terms of audience attendance and available productions, the Center's three halls were virtually in constant operation, entertaining a total of nearly 1.6 million people.

The Center's first season offered an almost overwhelming program: 18 weeks of dance with distinguished companies from the United States and abroad; 120 orchestral concerts by 20 major world orchestras, including 94 by the resident National Symphony Orchestra; 27 performances of 9 different operas; 60 concerts of popular music, folk, jazz and rock; 26 recitals by world famous musicians; 22 choral concerts; and 45 weeks of drama and musical comedy with works of Shakespeare, Shaw, Saroyan, Odets, Pinter, Bernstein, and Weill.



The American College Theatre Festival, presented for the fourth consecutive year by the Center and the Smithsonian, brought ten of the nation's finest college theater companies to perform for the first time in the Center's Eisenhower Theater. Produced by Frank Cassidy for the American Theatre Association and the American National Theatre and Academy, the Festival enjoyed the sponsorship of American Airlines and the American Oil Company. Participating schools were selected during twelve regional festivals held throughout the country and involving over 300 colleges and universities. Of special interest was the participation of the first foreign theater group, the Aleksander Zelwerowicz State Theatrical Higher School of Warsaw, Poland.

The third American College Jazz Festival, presented 28-29 May 1972, under the sponsorship of American Airlines, included performances by jazz ensembles from 15 colleges and universities.

The educational outreach of the Kennedy Center was very much in evidence. Tens of thousands of school children from the greater Washington area attended special concerts by the National Symphony Orchestra at the Center which were arranged by the wives of Cabinet members. Other performing arts organizations throughout the city also sponsored a number of special programs. In cooperation with the National Art Education Association, the Center offered an exhibit of paintings by students from 50 states, the District of Columbia, and Puerto Rico.

In addition, a commitment to making the Center accessible to all, regardless of economic circumstances, resulted in the establishment of a special ticket program subsidized by the Education Fund. Nearly 70,000 tickets to Center events were sold at half price to students, retired persons, the handicapped, low income groups and military personnel in the lower grades.

Throughout the year the Center continued to receive gifts of art objects and furnishings from this country and abroad. By June 1972, twenty nations had made contributions. Presented and dedicated since the opening were gifts from Argentina, Australia, Canada, Germany, Great Britain, India, Israel, Switzerland, Thailand, Turkey, and Yugoslavia.

The American artist, J. Anthony Wills, presented his portrait of President Eisenhower, which now hangs over the Eisenhower Theater's Presidential Box, and the Texas State Society donated and dedicated a bronze bust of President Eisenhower, the work of Felix W. de Weldon, which is mounted over the Theater's main entrance.

The development of private fund-raising program continued, and the names of major donors were incised in the marble walls of the Hall of States.

Probably the greatest success of the Center was found in the response of the public to its working reality. In addition to those who attended

performances in the Center during its first season, well over two million people came as visitors to enjoy and take pride in the long awaited, long needed National Cultural Center.

So much success would imply calm seas and a prosperous voyage. This is never the case with the creative arts and its institution. Growing pains are to be expected and provide measures for improvement. The Center has unfinished areas, including the studio theater and public rooms on the Roof Terrace level, and full landscaping of the 17 acre site is incomplete.

The enormous tourist response, which exceeded all expectations, created an increase in maintenance and security costs. These demands resulted in a severe financial strain, necessitating an appeal to Congress for maintenance arrangements befitting a Presidential memorial. Consequently, the Congress responded by amending the John F. Kennedy Center Act (72 Stat. 1698) to provide \$1.5 million for fiscal year 1972. The appropriation was designated for maintenance, security, and other services necessary to the nonperforming arts functions of the Center. The amendment also provided for the transfer of responsibility for these functions to the Department of Interior as of 1 July 1972.

The Center is administered separately by a 45-member Board of Trustees composed of 30 members appointed by the President to ten-year terms and 15 members ex-officio from pertinent public agencies and from the United States Senate and House of Representatives. Members of the Board at the end of fiscal year 1972 are as follows:

Roger L. Stevens, *Chairman*

Richard Adler

Floyd D. Akers

Ralph E. Becker

K. LeMoyne Billings

Mrs. Donna S. Bradshaw

J. Carter Brown

Mrs. Edward F. Cox

Robert W. Dowling

Ralph W. Ellison

Mrs. J. Clifford Folger

Abe Fortas

Rep. Peter H. B. Frelinghuysen

Senator J. William Fulbright

Mrs. George A. Garrett

Leonard H. Goldenson

Mrs. Rebekah Harkness

H.R. Haldeman

Mrs. Paul H. Hatch

George B. Hartzog, Jr.

Frank Ikard

Senator Edward M. Kennedy

Thomas H. Kuchel

Harry C. McPherson, Jr.

Mrs. Michael J. Mansfield

Sydney P. Marland, Jr.

Mrs. J. Willard Marriott

George Meany

Robert I. Millonzi

L. Quincy Mumford

Senator Charles R. Percy

Elliot L. Richardson

John Richardson, Jr.

S. Dillon Ripley

Rep. Teno Roncalio

Arthur Schlesinger, Jr.

Mrs. Jouett Shouse

Mrs. Stephen E. Smith

Henry Strong

William Hammond Thomas

Rep. Frank Thompson, Jr.

Senator John V. Tunney

Jack Valenti

Walter E. Washington

Lew R. Wasserman

The staff listing (Appendix 4) reflects some of the many changes in this year's direction and administration.

The 121-member Advisory Committee on the Arts, appointed by the President, continues as the chief consultative body of the Center. The Executive Committee includes:

Mrs. J. Willard Marriott, <i>Chairman</i>	Mrs. Benjamin C. Evans, <i>Vice Chairman,</i>
Robert S. Carter, <i>Secretary</i>	<i>Education and Program</i>
Vernon B. Stouffer, <i>Chairman,</i>	Mrs. Arnold Schwartz, <i>Director of</i>
<i>Finance</i>	<i>Publicity</i>
Mrs. Donna S. Bradshaw, <i>Vice Chairman,</i>	Mrs. D. Eldridge Jackson, <i>Northeast</i>
<i>Finance</i>	<i>Regional Chairman</i>
Mrs. Jack Wrather, <i>Chairman, Public</i>	Harvey B. Cohen, <i>Southern Regional</i>
<i>Relations</i>	<i>Chairman</i>
Harry L. Jackson, <i>Vice Chairman,</i>	John H. Myers, <i>Midwestern Regional</i>
<i>Public Relations</i>	<i>Chairman</i>
Mrs. Paul A. Clayton, <i>Chairman,</i>	Mrs. William A. McKenzie, <i>Western</i>
<i>Education and Program</i>	<i>Regional Chairman</i>

The Friends of the Kennedy Center, established as an auxiliary organization in 1966, increased membership to 8100 members. Volunteers of the Friends have given thousands of hours of time and effort to the Center, managing and manning the public tours, the information-souvenir stands, and providing hospitality and other services to Center operations and functions. Officers at the end of fiscal year 1972 are as follows:

Mrs. Polk Guest, <i>Chairman</i>	Mrs. Eugene Carusi, <i>Secretary</i>
Mrs. Norris Dodson, Jr., <i>Vice</i>	Henry Strong, <i>Treasurer</i>
<i>Chairman</i>	



## WOODROW WILSON INTERNATIONAL CENTER FOR SCHOLARS

Benjamin H. Read, *Director*

The Woodrow Wilson International Center for Scholars was founded by the Congress in 1968 to be "a living institution expressing the ideals and concerns of Woodrow Wilson . . . symbolizing and strengthening the fruitful relation between the world of learning and the world of public affairs." In keeping with this mandate, the Board of Trustees determined that the Center would emphasize "studies designed to increase man's understanding of significant international, governmental and social problems and to suggest alternative means of resolving them."

Since doors opened in October 1970, a total of 87 men and women from the United States and 20 other countries have been granted fellowship and guest scholar appointments at the Center, and many scores of other scholars have had occasion to use Center facilities. The distribution between U.S. and non-U.S. fellows has been roughly 60/40. Ages have ranged from the middle twenties to the early seventies. Academic fellows have come from careers in the social sciences, humanities, and natural sciences. Others have represented a broad range of other occupations and professions. The projects of some two-thirds of the fellows have related to one of the Center's designated areas of emphasis—international affairs, environment or oceans.

Center scholars have produced—or are in the process of producing for publication—a substantial number of articles, monographs and book-length manuscripts on a wide range of subjects, the majority related to one of the Center's three areas of emphasis.

## Appendix I

### SMITHSONIAN FOREIGN CURRENCY PROGRAM GRANTS AWARDED IN FISCAL YEAR 1972

#### Archeology and Related Disciplines

- American Institute of Indian Studies, Philadelphia, Pennsylvania.* Continued support for Poona Center, Benares Center for South Asian Art and Archeology, and American Institute of Indian Studies research fellowships.
- American Research Center in Egypt, Princeton, New Jersey.* Continued support for a program of research and excavation in Egypt, support for operation of Cairo Center, expedition to Fustat, epigraphic survey and maintenance of Chicago House at Luxor, maintenance of a stratified Pharonic site at Mendes, archeological research at the site of Hierakonopolis (Nekhen), and a study of the reliefs and paintings of the Third Intermediate period.
- American Schools of Oriental Research, Cambridge, Massachusetts.* Archeological activities of the American Schools of Oriental Research.
- Colgate University, Hamilton, New York.* Raksha, A National Inventory and Preservation Program for the Performing Arts of India.
- Denison University, Granville, Ohio.* Excavation of the Roman imperial metropolis at Sirmium.
- Dumbarton Oaks Center for Byzantine Studies, Washington, D.C.* Excavations leading to the publication of a corpus of ancient mosaics of Tunisia.
- Hebrew Union College, Jerusalem School of Archeology, Cincinnati, Ohio.* Excavation of an archeological site at Gezer, Israel.
- New York University, New York, New York.* Modernization in rural Tunisia.
- Rutgers University, Douglass College, New Brunswick, New Jersey.* Archeological excavations at Salona, Yugoslavia.
- Smithsonian Institution, Department of Anthropology, Washington, D.C.* Study of disappearing traditional crafts, industries, and technologies in Pakistan.
- Smithsonian Institution, Center for the Study of Man, Washington, D.C.* Conference on Anthropology, Cross Cultural Data Retrieval and Pressing Social Problems.
- State University of New York, Buffalo, New York.* Archeological investigations on the Neolithic and Early Bronze Ages in southeastern Poland.
- University of Arizona, Tucson, Arizona.* Excavations at the site of Tabun, Israel.
- University of California, Los Angeles, California.* Excavations at Obre, Yugoslavia, publication of research.
- University of Minnesota, Minneapolis, Minnesota.* Excavations at the Palace of Diocletian at Split, Yugoslavia.
- University of Missouri, Columbia, Missouri.* Excavations at Tel Anafa (Shamir), Israel.
- University of Missouri, Columbia, Missouri.* Investigations of ancient glass manufacturing sites in Israel.
- University of Pennsylvania, University Museum, Philadelphia, Pennsylvania.* The Akhnaten Temple project, Egypt.
- University of Pennsylvania, Philadelphia, Pennsylvania.* Excavations within the town and harbor site of Malkata, Western Thebes, Egypt.

*University of Texas, Austin, Texas.* Archeological investigations at Stobi, Yugoslavia.

### Systematic and Environmental Biology (Including Paleobiology)

*Dartmouth College, Hanover, New Hampshire.* Limnological investigations of Lake Ohrid, Yugoslavia.

*National Academy of Sciences, Washington, D.C.* Research, planning and training for International Biological Program personnel in the "excess" currency countries.

*Smithsonian Institution, Department of Botany, Washington, D.C.* A flora of the Hassan District, Mysore State, India.

*Smithsonian Institution, Division of Birds, Washington, D.C.* Migratory bird survey in India.

*Smithsonian Institution, Office of Environmental Sciences, Washington, D.C.* Bird banding and avifaunal survey in Israel.

*Smithsonian Institution, Office of Environmental Sciences, Washington, D.C.* Limnological Investigations of Lake Skadar, Yugoslavia.

*Smithsonian Institution, Office of Environmental Sciences, Washington, D.C.* Marine Decapod Crustaceans of North Africa.

*Southern Methodist University, Dallas, Texas.* Conference on African paleontology and paleoecology.

*Smithsonian Institution, Washington, D.C.* Development of Smithsonian scientific programs in South Asia.

*Smithsonian Institution, Office of Environmental Sciences, Washington, D.C.* Study in Israel of biological interchanges between the eastern Mediterranean and the Red Sea through the Suez Canal.

*University of Colorado, Boulder, Colorado.* Studies of the cytotaxonomy of the Yugoslavian flora.

*University of Illinois, Chicago, Illinois.* Cretaceous teleostean fishes of Yugoslavia.

*University of the State of New York, Stony Brook, New York.* Study of the ecology of an Eilat coral reef in Israel.

*Utah State University, Logan, Utah.* Systems analysis of the pre-Saharan ecosystem of Southern Tunisia.

*Yale University, New Haven, Connecticut.* Habitat relationships and distribution of wild ungulates in the Gir Forest, India.

### Astrophysics and Earth Sciences

*Duke University, Durham, North Carolina.* Sedimentation in Bahiret El Bibane, Tunisia.

*Smithsonian Institution, Astrophysical Observatory, Cambridge, Massachusetts.* Theories of planetary motion (Egypt).

*Smithsonian Institution, Astrophysical Observatory, Cambridge, Massachusetts.* Study of the collective behavior of self-gravitating systems (Israel).

*Smithsonian Institution, Astrophysical Observatory, Cambridge, Massachusetts.* An astronomical observing program in Israel.

*Smithsonian Institution, Astrophysical Observatory, Cambridge, Massachusetts.* A research program in remote sensing of the troposphere by radio troposcatter technique.



*University of Pennsylvania, Philadelphia, Pennsylvania.* Field and laboratory studies of Libyan desert silica glass.

### Museum Programs

*Smithsonian Institution, Woodrow Wilson International Center for Scholars, Washington, D.C.* Research support in "excess" currency countries.

*Smithsonian Institution, Division of Medical Sciences, Washington, D.C.* Research in the history of medicine, pharmacy and pharmacology (Egypt).

## Appendix 2

### MEMBERS OF THE SMITHSONIAN COUNCIL 30 JUNE 1972

- Dr. Roger Abrahams.* Director, African and Afro-American Research Institute, The University of Texas, Austin.
- Mr. H. Harvard Arnason.* Vice President for Art Administration, Solomon R. Guggenheim Foundation, New York City.
- Dr. Muriel M. Berman.* Allentown, Pennsylvania. (Honorary member.)
- Dr. Herman R. Branson.* President, Lincoln University, Pennsylvania.
- Professor Fred R. Eggen.* Department of Anthropology, University of Chicago, Illinois.
- Professor Donald S. Farner.* Chairman, Department of Zoology, University of Washington, Seattle.
- Professor Anthony N.B. Garvan.* Department of American Civilization, University of Pennsylvania, Philadelphia.
- Dr. Murray Gell-Mann.* Robert Andrews Millikan Professor of Theoretical Physics, California Institute of Technology, Pasadena.
- Dr. Philip Handler.* President, National Academy of Sciences, Washington, D.C.
- Dr. David Hawkins.* Director, Mountain View Center for Environmental Education, University of Colorado, Boulder.
- Professor G. Evelyn Hutchinson.* Sterling Professor of Zoology, Yale University, New Haven, Connecticut.
- Professor Jan LaRue.* Department of Music, Graduate School of Arts and Sciences, New York University, New York City.
- Dr. Clifford L. Lord.* President, Hofstra University, Hempstead, New York.
- Professor Charles D. Michener.* Watkins Distinguished Professor of Entomology, University of Kansas, Lawrence.
- Dr. Peter M. Millman.* National Research Council of Canada, Ottawa, Ontario. Meteoritic Specialist.
- Mr. Elting E. Morison.* Acting Master, Timothy Dwight College, Yale University, New Haven, Connecticut.
- Professor Norman Holmes Pearson.* Department of English and American Studies, Yale University, New Haven, Connecticut.
- Mr. Gordon N. Ray.* President, John Simon Guggenheim Memorial Foundation, New York City.
- Mr. Philip C. Ritterbush.* Chairman, Organization response, Washington, D.C.
- Mr. André Schiffrin.* Managing Director, Pantheon Books, New York City.
- Mr. George C. Seybolt.* Watertown, Massachusetts. (Honorary member.)
- Professor Cyril Stanley Smith.* Institute Professor, Massachusetts Institute of Technology, Cambridge.
- Professor John D. Spikes.* Department of Biology, University of Utah, Salt Lake City.
- Professor Stephen E. Toulmin.* Provost, Crown College, University of California, Santa Cruz.
- Dr. William Von Arx.* Senior Scientist, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts.

*Professor Warren H. Wagner, Jr.* Department of Botany, University of Michigan,  
Ann Arbor.

*Dr. Rainer Zangerl.* Chairman, Department of Geology, Field Museum of Natural  
History, Chicago, Illinois.



## Appendix 3

### SMITHSONIAN ASSOCIATES MEMBERSHIP 1971-1972

#### Contributing Membership

Our deepest gratitude is extended to our members for their interest and generous support of the Smithsonian Associates this year, and especially to those listed below, who have contributed amounts in excess of the membership dues.

#### FOUNDER MEMBERS

(\$1000 and up)

Mr. Alfred C. Glassell, Jr.  
The Honorable Frank N. Ikard

Mr. Joseph A. Thomas

#### CONTRIBUTING MEMBERS

(\$100 and up)

Mrs. Howard Ahmanson  
Dr. and Mrs. Aerol Arnold (Bing  
Fund, Inc.)  
Mr. and Mrs. Norman Bernstein  
Mr. and Mrs. J.B. Bogan  
Mrs. Albert J. Bowley  
Mr. Maxwell Brace  
Mr. J. Bruce Bredin  
The Honorable and  
Mrs. William A.M. Burden  
Mrs. Jackson Burke  
Mr. Carter Cafritz  
Mr. and Mrs. Conrad Cafritz  
Miss Joan Collett  
Miss Virginia M. Collins  
Mr. Daniel W. Cook, III  
Mr. Richard P. Cooley  
Dr. and Mrs. William H. Crocker  
Mr. Morgan J. Davis  
General Jacob L. Devers  
Captain and Mrs. Robert F. Doss  
The Honorable Angier Biddle Duke  
Mr. and Mrs. Charles Eames  
Mr. and Mrs. Robert B. Eichholz  
Mr. Gerald S. Eilberg  
Mr. and Mrs. Waldron Faulkner  
Miss Judith R. Fetter  
The Honorable and Mrs. Edward Foley

The Honorable and Mrs. Peter  
Frelinghuysen  
Mr. T. Jack Gary, Jr.  
Mr. W.E. Gathright  
General James M. Gavin  
Mr. Philip M. Gignoux  
Mr. and Mrs. T.K. Glennan  
Mr. and Mrs. Charles C. Glover III  
Colonel and Mrs. Julius Goldstein  
Mrs. Katharine Graham  
Dr. Sheila H. Gray  
Mr. W.J. Henderson  
Mr. Lon Hocker  
Mr. Charles Beecher Hogan  
Mr. Arthur A. Houghton, Jr.  
Miss Elisabeth Houghton  
Mrs. Edward F. Hutton  
Mrs. Randolph Kidder  
Mr. and Mrs. Anthony A. Lapham  
Mrs. Newbold Legenore  
Mr. and Mrs. Harold F. Linder  
Mrs. Demarest Lloyd  
Mr. Edmund C. Lynch  
Mr. and Mrs. Edmund Marcus  
Mr. Stanley Marcus  
Mr. and Mrs. Leonard H. Marks  
Mr. and Mrs. John H. McLaren  
Mr. and Mrs. E. Kirkbride Miller

Mr. and Mrs. Carl J. Mulert, Jr.  
 Mr. Gerson Nordlinger, Jr.  
 The Honorable and Mrs. Jefferson  
 Patterson  
 Mr. Edmund E. Pendleton, Jr.  
 Mr. Charles Emory Phillips  
 Mr. Abe Pollin  
 Mrs. T. Randolph Potter  
 Dr. and Mrs. Ernest G. Rafey  
 Mr. James H. Ripley  
 Mrs. John Farr Simmons  
 Dr. and Mrs. T. Dale Stewart  
 Mrs. Edward C. Sweeney  
 Ms. Sally Sweetland

Martha Frick, Symington Foundation,  
 Inc. (Mrs. Martha Frick Symington)  
 Mr. and Mrs. David G. Townsend  
 Mr. and Mrs. Philip M. Tracy  
 Mr. and Mrs. J.S. Tressler  
 Mr. and Mrs. A. Buel Trowbridge  
 Mr. and Mrs. Julius Wadsworth  
 The Honorable James E. Webb  
 Mr. and Mrs. William S. Weedon  
 Mrs. Norma Christine Wertz  
 Mr. George Y. Wheeler III  
 Mr. and Mrs. Luke W. Wilson  
 Mrs. Mark Winkler

## SUPPORTING MEMBERS

(\$50 and up)

The Reverend and Mrs. F. Everett  
 Abbott  
 Mr. and Mrs. Stanley N. Allan  
 Mr. and Mrs. Walter Beck  
 The Honorable Frances P. Bolton  
 Mr. and Mrs. Philip Bonsal  
 Mr. and Mrs. John F. Boyd  
 Mrs. Eugenie Rowe Bradford  
 Mr. and Mrs. Frederick B. Bryant  
 Mrs. Linda C. Burgess  
 Mrs. Therese Burleson  
 Dr. and Mrs. Charles M. Cabaniss  
 Mr. and Mrs. James G. Chandler  
 Mr. and Mrs. David G. Chapman  
 Mr. and Mrs. David Sanders Clark  
 Mrs. Barbara Collier  
 Mr. Robert M. Comly  
 Mrs. Chester Dale  
 Mr. and Mrs. Michael F. Deevy  
 Mr. and Mrs. Ewen C. Dingwall  
 Mr. and Mrs. Allen T. Dittmann  
 Mr. James M. Duncan III  
 Mrs. Julius Fleischmann  
 Mr. and Mrs. Arthur H. Fribourg  
 Mr. John W. Galston  
 Mr. and Mrs. Arthur W. Gardner  
 Miss Anne H. Goldfinch  
 Miss Virginia H. Groomes  
 Miss Morella R. Hansen  
 Mr. Tom Hart  
 Dr. and Mrs. L.M. Hellman  
 Mr. and Mrs. James D. Hurd  
 Mr. and Mrs. Gerald O. Johnson

Mrs. George C. Keiser  
 Mr. Walter H. Kidd  
 Mr. J.A. King  
 Mrs. C. Edwin Kline  
 Mr. and Mrs. J.K. Knee  
 Miss S. Victoria Krusiewski  
 Mr. Paul LePage  
 Marianne E. and Maxwell B. Lewis  
 Mr. and Mrs. Sol M. Linowitz  
 Mr. and Mrs. Stephen Low  
 Miss Katherine Magraw  
 Major and Mrs. George S. Mansfield  
 Mr. and Mrs. Sheldon I. Matzkin  
 Mrs. R.B. Menapace  
 Colonel and Mrs. Kenneth L. Moll  
 Mrs. E.P. Moore  
 Mr. and Mrs. J. Lloyd Niles  
 Mr. and Mrs. C. Norden and Family  
 Mrs. Carolyn C. Onufrak  
 Mr. Estrada Raul Oyuela  
 Mr. Donald H. Price  
 Dr. and Mrs. Jorold J. Principato  
 Mr. and Mrs. Howard W. Reid  
 Dr. Michael J. Reilly  
 Mr. R.D. Remley  
 Mrs. John Barry Ryan  
 Mr. and Mrs. Frank M. Sanger, Jr.  
 Mr. Michael F. Sawyer  
 Mr. and Mrs. James H. Scheuer  
 Mr. and Mrs. Lamar A. Smith  
 Mr. and Mrs. Larry Snodgrass  
 Mr. and Mrs. Richard L. Sugarman  
 Miss Helen S. Thompson

Mr. and Mrs. Richard C. Van Dusan  
 General and Mrs. L.A. Walsh, Jr.  
 Mr. and Mrs. Robert B. Watson  
 Mr. and Mrs. Stanley Westreich  
 Mr. and Mrs. John L. Wheeler

Miss Claudia P. Wilds  
 Mr. and Mrs. J.H. Wilkinson, Jr.  
 Mr. and Mrs. Anthony Wilson  
 Mrs. Leslie H. Wyman

### Life Membership

The Institution gratefully acknowledges the generosity and enthusiasm of the following individuals who became Life Members during the years 1965 through 1971, when life memberships in the Smithsonian Associates were available.

#### FOUNDER MEMBERS

(\$1000 and up)

Mr. Irwin Belk  
 The Honorable and Mrs. David K.E.  
 Bruce  
 Mrs. Morris Cafritz  
 The Honorable Douglas Dillon  
 Mr. Charles E. Eckles

The Honorable and Mrs. John Clifford  
 Folger  
 Mr. Cornelius Van S. Roosevelt  
 Mr. Thomas J. Watson, Jr.  
 Mr. P.A.B. Widener  
 Mr. and Mrs. Sidney S. Zlotnick

#### SUSTAINING MEMBERS

(\$500 and up)

Mrs. Anna Bing Arnold  
 Mrs. Theodore Babbitt  
 Mr. Joel Barlow  
 Mr. and Mrs. Richard Barnes  
 Mr. William R. Biggs  
 Mr. George A. Binney  
 Mr. and Mrs. Joseph D. Blatt  
 Miss Fay Boyle  
 Mrs. L. Roosevelt Bramwell  
 Mr. A. Marvin Braverman  
 Mr. and Mrs. John Nicholas Brown  
 Mr. Bertram F. Brummer  
 Mrs. Leon Campbell, Jr.  
 Mr. and Mrs. Leonard Carmichael  
 Dr. Rita Chow  
 Clarke and Rapuano Foundation  
 (Mr. Gilmore D. Clarke)  
 Mrs. Frances A. Davila  
 Mr. Newell W. Ellison  
 Mr. and Mrs. Alfred U. Elser, Jr.  
 Mr. and Mrs. Richard S. Friedman  
 Mr. Richard E. Fuller  
 Mr. and Mrs. Hy Garfinkel  
 Mr. George A. Garret  
 Mr. Carl S. Gewirz  
 Mr. and Mrs. Crawford Greenewalt

Mr. and Mrs. Gilbert C. Greenway  
 Mr. William H. Greer, Jr.  
 Mr. Melville B. Grosvenor  
 Mr. and Mrs. Homer Gudelsky  
 Mr. Gilbert Hahn  
 Mr. Laurence Harrison  
 Mr. and Mrs. Joseph Hirshhorn  
 Mr. and Mrs. Christian Hohenlohe  
 Mr. Philip Johnson  
 Miss Brenda Kuhn  
 Mr. Harold F. Linder  
 Colonel and Mrs. Leon Mandel  
 Mr. and Mrs. J. Willard Marriott  
 The Honorable William McC.  
 Martin, Jr.  
 Lieutenant Commander and Mrs. P.J.  
 Maveety  
 Mr. and Mrs. Paul Mellon  
 Miss Katherine A.A. Murphy  
 Neuberger Foundation Incorporated  
 (Roy R. and Marie S. Neuberger)  
 Duke of Northumberland  
 Dr. and Mrs. Melvin M. Payne  
 Miss Lucy M. Pollio  
 Mrs. Merriweather Post  
 Mr. and Mrs. Peter Powers



Miss Elsie Howland Quinby  
 Dr. and Mrs. S. Dillon Ripley  
 Mr. and Mrs. Seymour J. Rubin  
 Mr. H.C. Seherr-Thoss  
 Mrs. Jouett Shouse  
 Dr. and Mrs. Carl Swan Shultz  
 Mr. and Mrs. Robert H. Smith  
 Mr. Robert T. Smith

Mr. and Mrs. Bertrand L. Taylor III  
 Mrs. Clark W. Thompson  
 Mrs. Carll Tucker  
 Mr. Alexander O. Vietor  
 Mr. and Mrs. John W. Warner  
 Dr. Alexander Wetmore  
 Mr. and Mrs. W. Bradley Willard  
 Mrs. Rose Saul Zalles

### Corporate Membership

We thank the following business organizations for their understanding and generous support of the Institution's research and education through Charter Membership in the Smithsonian Associates.

International Business Machines, Inc.  
 (Four Year Pledge)  
 International Telephone & Telegraph  
 Corp. (Four Year Pledge)  
 Caterpillar Tractor Company  
 Celanese Corporation

Dart Industries  
 Deere and Company  
 Melville Shoe Corporation  
 PACCAR Inc.  
 Philip Morris, Inc.  
 J.K. Smit and Sons

### National Board

This body was created in October 1971 to assist the Institution in the pursuit of certain of its aims for the decade of the 1970s, particularly in the development of its relations with industry. While the Institution hopes to advance its goals in public education and environmental studies through increased private support, it seeks, in turn, to serve the educational and community interests of its Corporate Members. We are grateful for the energy and concern shown by the members of the Board.

Thomas J. Watson, Jr., Chairman  
 Harry Hood Bassett  
 William Blackie  
 John W. Brooks  
 Richard P. Cooley  
 Joseph F. Cullman III  
 Harry B. Cunningham  
 Paul L. Davies  
 Leonard K. Firestone  
 Charles T. Fisher III  
 G. Keith Funston  
 Alfred C. Glassell, Jr.  
 Mrs. David L. Guyer  
 Ben W. Heineman

Henry J. Heinz II  
 William A. Hewitt  
 Lewis A. Lapham  
 Frank Y. Larkin  
 The Honorable George C. McGhee  
 Mrs. Robert S. McNamara  
 Ruben F. Mettler  
 Roger Milliken  
 Charles M. Pigott  
 Francis C. Rooney, Jr.  
 Merritt K. Ruddock  
 Mrs. Henry P. Smith III  
 James O. Wright

## Appendix 4

### STAFF OF THE SMITHSONIAN INSTITUTION 30 JUNE 1972

#### Secretary's Office and Related Activities

The Secretary . . . . .	S. Dillon Ripley
Executive Assistant . . . . .	Christian C. Hohenlohe
Under Secretary . . . . .	James Bradley
The Assistant Secretary . . . . .	Robert A. Brooks
Administrative Officer . . . . .	Dorothy Rosenberg
Director of Support Activities . . . . .	Richard L. Ault
Assistant to Under Secretary . . . . .	Edward H. Kohn
Director, Office of Audits . . . . .	Chris S. Peratino
Assistant Secretary for Science . . . . .	David Challinor
Assistant Secretary for History and Art . .	Charles Blitzer
Assistant Secretary for Public Service (Acting) . . . . .	Julian Euell <sup>1</sup>
Assistant Secretary for Museum Programs (Director, United States National Museum) . . . . .	Paul N. Perrot <sup>2</sup>
Treasurer . . . . .	T. Ames Wheeler
Assistant Treasurer . . . . .	Betty J. Morgan
Director, Office of Programming and Budget . . . . .	John F. Jameson
Chief Accountant . . . . .	Allen S. Goff
General Counsel . . . . .	Peter G. Powers
Assistant General Counsels . . . . .	Alan D. Ullberg George S. Robinson L. Wardlaw Hamilton Suzanne D. Murphy Marie C. Malaro
Special Projects, Office of the Secretary	
Special Assistant to the Secretary . . .	Richard H. Howland
Special Assistant to the Secretary . . .	Woodruff M. Price
Director, Office of Development . . . .	Lynford E. Kautz
Editor, Joseph Henry Papers . . . . .	Nathan Reingold
Director, Office of Equal Employment Opportunity . . . . .	Archie D. Grimmett <sup>3</sup>
Special Events Officer . . . . .	Meredith Johnson
Curator, Smithsonian Institution Build- ing . . . . .	James M. Goode

<sup>1</sup> William W. Warner on sabbatical leave.

<sup>2</sup> Effective 1 August 1972.

<sup>3</sup> Replaced Joseph A. Kennedy, retired, on 4 June 1972.

Support Activities

Director, Buildings Management	
Department	Andrew F. Michaels
Contracting Officer, Contracts Office	Elbridge O. Hurlbut
Director, International Exchange Service	
	Jeremiah A. Collins
Director, Information Systems	
Division <sup>4</sup>	Stanley A. Kovy
Director, Management Analysis Office	Ann S. Campbell
Director, Office of Personnel	
Administration	Vincent J. Doyle
Director, Photographic Services	
Division	Arthur L. Gauth
Chief, Supply Division	Fred G. Barwick
Chief, Travel Services Office	Betty V. Strickler
Honorary Research Associates	Charles G. Abbot,
	Secretary Emeritus
	Leonard Carmichael,
	Secretary Emeritus
	Paul H. Oehser
Honorary Fellow	Alexander Wetmore,
	Secretary Emeritus
	John A. Graf

SCIENCE

Assistant Secretary	David Challinor
Special Assistants	Helen L. Hayes
	Michael R. Huxley
	Harold J. Michaelson
	Paula U. Duncan

National Museum of Natural History

Director	Richard S. Cowan
Assistant Director	Paul K. Knierim
Assistant to Director (ADP)	James F. Mello
Assistant to Director (Exhibits)	Ronald S. Goor
Administrative Officers	Mabel A. Byrd <sup>5</sup>
	John C. Townsend
<i>Anthropology</i>	
Chairman	Clifford Evans
Senior Physical Anthropologist	T. Dale Stewart
Senior Archeologist	Waldo R. Wedel
Senior Ethnologist	John C. Ewers
Associate Curator	Dennis M. Stanford <sup>6</sup>

<sup>4</sup> Name of office changed from Administrative Systems Division, December 1971.

<sup>5</sup> Retired 30 June 1972.

<sup>6</sup> Appointed 26 May 1972.



Collections Manager . . . . .	George E. Phebus
Archivist . . . . .	Margaret C. Blaker <sup>7</sup>
Latin American Anthropology	
Curator . . . . .	Clifford Evans
Associate Curators . . . . .	William H. Crocker Robert M. Laughlin
Old World Anthropology	
Curators . . . . .	Gordon D. Gibson Saul H. Rosenberg Gus W. Van Beek
Associate Curators . . . . .	Eugene I. Knez William B. Trousdale
North American Anthropology	
Curator . . . . .	William C. Sturtevant
Associate Curator . . . . .	William W. Fitzhugh
Physical Anthropology	
Curator . . . . .	J. Lawrence Angel
Associate Curators . . . . .	Donald J. Ortner Lucile E. St. Hoyme
Museum Specialist . . . . .	Douglas H. Ubelaker
Research Associates, Collaborators, and Affiliated Scientists . . . . .	
	Hans-Georg Bandi (Archeology)
	W. Montague Cobb (Physical Anthropology)
	T. Aidan Cockburn (Physical Anthropology)
	Henry B. Collins (Archeology)
	Wilson Duff (Ethnology)
	Roger I. Eddy (Ethnology)
	Don D. Fowler (Archeology)
	Marcus S. Goldstein (Physical Anthropology)
	Sister Inez Hilger (Ethnology)
	C. G. Holland (Archeology)
	Neil M. Judd (Archeology)
	Richard T. Koritzer (Physical Anthropology)
	Ralph K. Lewis (Archeology)
	Olga Linares de Sapi (Archeology)
	Betty J. Meggers (Archeology)
	George S. Metcalf (Archeology)
	Walter G. Putschar (Physical Anthropology)
	Victor A. Nunez Regueiro (Archeology)
	Wilhelm G. Solheim (Archeology)
	T. Dale Stewart (Physical Anthropology)
	Matthew W. Stirling (Archeology)
	Robert Stuckenrath (Archeology)

<sup>7</sup> Retired 30 June 1972.

	Theodore A. Wertime (Archeology)
	Edwin F. Wilmsen (Archeology)
Botany	
Chairman	Edward S. Ayensu
Senior Botanists	Lyman B. Smith
	Conrad V. Morton
Phanerogams	
Curators	John J. Wurdack
	Velva Rudd
	Wallace R. Ernst <sup>8</sup>
	F. Raymond Fosberg
Associate Curators	Dan H. Nicolson
	Marie-Helene Sachet
	Stanwyn G. Shetler
	Beryl S. Vuilleumier <sup>9</sup>
Assistant Curator	Dieter C. Wasshausen
Ferns	
Associate Curator	David B. Lellinger
Grasses	
Associate Curator	Thomas R. Soderstrom
Cryptogams	
Curators	Harold E. Robinson
	Mason E. Hale, Jr.
Associate Curator	Arthur L. Dahl
Plant Anatomy	
Curators	Richard H. Eyde
	Edward S. Ayensu
Associate Curator	Joan M. W. Nowicke <sup>10</sup>
Research Associates, Collaborators and Affiliated Scientists <sup>11</sup>	W. Andrew Archer (Flowering Plants)
	Chester R. Benjamin (Fungi)
	John A. Churchill (Flowering Plants)
	Paul S. Conger (Diatomaceae)
	José Cuatrecasas (Flora of Tropical South America)
	James A. Duke (Flora of Panama)
	Emily W. Emmart (Plants of Mexico)
	Marie L. Farr (Fungi)
	Howard S. Gentry (Economic Plants of Northwestern Mexico)
	Aaron Goldberg (Phanerograms)
	Charles R. Gunn (Fungi)
	William H. Hathaway (Flora of Central America)

<sup>8</sup> Died 8 October 1971.

<sup>9</sup> Appointed 4 June 1972.

<sup>10</sup> Appointed 4 June 1972.

<sup>11</sup> National fungus collections are curated by Department of Agriculture staff.

Frederick J. Hermann (North  
American Flora)  
Robert M. King (Compositae)  
Paul L. Lentz (Fungi)  
Elbert L. Little (Dendrology)  
Alicia Lourteig (Neotropical Botany)  
Kittie F. Parker (Compositae)  
Julian C. Patiño (Flora of Colombia)  
Robert W. Read (Palmae)  
Clyde F. Reed (Ferns)  
James L. Reveal (Ferns)  
Marie L. Solt (Melastomataceae)  
Frans A. Stafleu (Phanerograms)  
William L. Stern (Plant Anatomy)  
John A. Stevenson (Fungi)  
Edward E. Terrell (Phanerograms)  
Francis A. Uecker (Fungi)  
Egbert H. Walker (Myrsinaceae,  
East Asian Flora)

### *Entomology*

Chairman . . . . . Paul D. Hurd, Jr.  
Senior Entomologists . . . . . Karl V. Krombein  
J. F. Gates Clarke

### *Neuropteroids*

Curators . . . . . Oliver S. Flint, Jr.  
Richard W. Baumann<sup>12</sup>

### *Lepidoptera and Diptera*

Curator . . . . . Donald R. Davis  
Associate Curator . . . . . W. Donald Duckworth  
Assistant Curator . . . . . William D. Field

### *Coleoptera*

Curator . . . . . Terry L. Erwin  
Associate Curator . . . . . Paul J. Spangler

### *Hemiptera and Hymenoptera*

Associate Curator . . . . . Richard C. Froeschner

### *Myriapoda and Arachnida*

Curator . . . . . Ralph E. Crabill, Jr.

### *Research Associates, Collaborators, and*

Affiliated Scientists . . . . . Charles P. Alexander (Diptera)  
William H. Anderson (Coleoptera)  
Doris H. Blake (Coleoptera)  
Franklin S. Blanton (Diptera)  
Frank L. Campbell (Insect  
Physiology)  
Oscar L. Cartwright (Coleoptera)  
K. C. Emerson (Mallophaga)  
John G. Franclemont (Lepidoptera)  
Frank M. Hull (Diptera)  
William L. Jellison (Siphonaptera,  
Anoplura)

<sup>12</sup> Appointed 19 June 1972.



	Harold F. Loomis (Myriapoda)
	Carl F. W. Muesebeck
	(Hymenoptera)
	Robert Traub (Siphonaptera)
<i>Invertebrate Zoology</i>	
Chairman . . . . .	David L. Pawson <sup>13</sup>
Senior Zoologists . . . . .	Fenner A. Chace, Jr.
	Horton H. Hobbs, Jr.
	Harald A. Rehder
Crustacea	
Curators . . . . .	Raymond B. Manning <sup>14</sup>
	Thomas E. Bowman
	J. Laurens Barnard
	Louis S. Kornicker
Associate Curator . . . . .	Roger F. Cressey
Visiting Curator . . . . .	Lipke Holthuis <sup>15</sup>
Echinoderms	
Curator . . . . .	David L. Pawson
Associate Curator . . . . .	Klaus Ruetzler
Visiting Curator . . . . .	Frederick M. Bayer <sup>16</sup>
Worms	
Curators . . . . .	Meredith L. Jones
	Marian H. Pettibone
	Mary E. Rice
Associate Curator . . . . .	W. Duane Hope
Mollusks	
Curator . . . . .	Joseph Rosewater
Associate Curators . . . . .	Joseph P. E. Morrison
	Clyde F. E. Roper
Research Associates, Collaborators, and	
Affiliated Scientists . . . . .	S. Stillman Berry (Mollusks)
	J. Bruce Bredin (Biology)
	Isabel C. Canet (Crustacea)
	Maybelle H. Chitwood (Worms)
	Ailsa M. Clark (Marine
	Invertebrates)
	Elisabeth Deichmann (Echinoderms)
	Mary Gardiner (Echinoderms)
	Roman Kenk (Worms)
	Anthony J. Provenzano, Jr.
	(Crustacea)
	Waldo L. Schmitt (Marine
	(Invertebrates)
	Frank R. Schwengel (Mollusks)
	I. G. Sohn (Crustacea)
	Donald F. Squires (Echinoderms)
	Gilbert L. Voss (Mollusks)

<sup>13</sup>Appointed 5 September 1971.  
<sup>14</sup>Appointed 5 September 1971.  
<sup>15</sup>Terminated 15 May 1972.  
<sup>16</sup>Terminated 6 February 1972.

	Mildred S. Wilson (Copepod Crustacea)
<i>Mineral Sciences</i>	
Chairman . . . . .	Brian H. Mason
Curator . . . . .	George S. Switzer
<i>Meteorites</i>	
Curator . . . . .	Kurt Fredericksson
Associate Curator . . . . .	Roy S. Clarke, Jr.
Geochemist . . . . .	Robert F. Fudali
Chemists . . . . .	Eugene Jarosewich Joseph A. Nelen
<i>Mineralogy</i>	
Associate Curator . . . . .	Paul E. Desautels
Crystallographer . . . . .	Joel E. Arem
<i>Petrology</i>	
Associate Curator . . . . .	William G. Melson
Geologist . . . . .	Thomas E. Simkin <sup>17</sup>
<i>Research Associates, Collaborators, and Affiliated Scientists</i>	
	Howard J. Axon (Meteorites)
	Vago F. Buchwald (Meteorites)
	Tomas Feininger (Petrology)
	Edward P. Henderson (Meteorites)
	John B. Jago (Mineralogy)
	Peter Leavens (Mineralogy)
	Rosser Reeves (Mineralogy)
	Geoffrey Thompson (Petrology)
	Harry Winston (Mineralogy)
<i>Paleobiology</i>	
Chairman . . . . .	Porter M. Kier
Senior Paleobiologists . . . . .	G. Arthur Cooper <sup>18</sup> C. Lewis Gazin
Collections Manager . . . . .	Frederick J. Collier
<i>Invertebrate Paleontology</i>	
Curators . . . . .	Richard M. Benson Richard S. Boardman Martin A. Buzas Alan H. Cheetham Richard Cifelli Richard E. Grant <sup>19</sup> Erle G. Kauffman
Associate Curator . . . . .	Thomas R. Waller
Geologist . . . . .	Kenneth M. Towe
<i>Vertebrate Paleontology</i>	
Curators . . . . .	Clayton E. Ray Nicholas Hotton III
Associate Curator . . . . .	Robert J. Emry
<i>Paleobotany</i>	
Curator . . . . .	Walter H. Adey

<sup>17</sup>Appointed 6 February 1972.

<sup>18</sup>Retired 29 February 1972.

<sup>19</sup>Appointed 14 May 1972. Elected Chairman Spring 1972, effective 3 July 1972.

Associate Curators	Leo J. Hickey Francis M. Hueber
Sedimentology	
Geological Oceanographer	Daniel J. Stanley
Curator	Jack W. Pierce
Associate Curator	Ian G. Macintyre <sup>20</sup>
Research Associates, Collaborators, and Affiliated Scientists	
Invertebrate Paleontology	Arthur J. Boucot Anthony C. Coates C. Wythe Cooke <sup>21</sup> G. Arthur Cooper Raymond Douglass J. Thomas Dutro Robert M. Finks C. Lewis Gazin Mackenzie Gordon, Jr. Joseph E. Hazel John W. Huddle Ralph W. Imlay Jeremy B. C. Jackson Harry S. Ladd N. Gary Lane Kenneth E. Lohman Venka V. Macintyre Sergius H. Mamay James F. Mello William A. Oliver, Jr. Axel A. Olsson John Pojeta, Jr. Norman F. Sohl Steven M. Stanley Margaret Ruth Todd Wendell P. Woodring Ellis L. Yochelson
Paleobotany	Patricia J. Adey David Child
Sedimentology	Gilbert Kelling Frederic R. Siegel
Vertebrate Paleontology	Douglas Emlong Charles A. Reppening Frank C. Whitmore, Jr.
Vertebrate Zoology	
Chairman	George E. Watson
Fishes	
Curators	Robert H. Gibbs, Jr. Ernest A. Lachner Victor G. Springer Stanley H. Weitzman

<sup>20</sup>Appointed 26 December 1971.

<sup>21</sup>Died 25 December 1971.



Associate Curator . . . . .	William R. Taylor
Reptiles and Amphibians	
Curator . . . . .	James A. Peters
Assistant Curator . . . . .	George R. Zug
Birds	
Curator . . . . .	Richard L. Zusi
Associate Curator . . . . .	Paul Slud
Mammals	
Curators . . . . .	Charles O. Handley Henry W. Setzer
Associate Curator . . . . .	Richard W. Thorington, Jr.
Research Associates, Collaborators, and Affiliated Scientists . . . . .	John W. Aldrich (Birds) Richard C. Banks (Birds) William Belton (Birds) James E. Böhlke (Fishes) Robert L. Brownell, Jr. (Mammals) Leonard Carmichael (Psychology, Animal Behavior) Daniel M. Cohen (Fishes) Bruce B. Collette (Fishes) George J. Divocky (Birds) John F. Eisenberg (Mammals) Robert K. Eenders (Mammals) Herbert Friedmann (Birds) Crawford H. Greenewalt (Birds) Arthur M. Greenhall (Mammals) Brian A. Harrington (Birds) Philip S. Humphrey (Birds) George J. Jacobs (Reptiles, Amphibians) David H. Johnson (Mammals) Clyde J. Jones (Mammals) E. V. Komarek (Mammals) Roxie C. Laybourne (Birds) Ronald Mackenzie (Mammals) Richard H. Manville (Mammals) J. A. J. Meester (Mammals) Edgardo Mondolfi (Mammals) Russell E. Mumford (Mammals) John R. Napier (Mammals) Storrs L. Olson (Birds) Braulio Orejas-Miranda (Reptiles) John Paradiso (Mammals) Dioscoro S. Rabor (Birds) G. Carleton Ray (Mammals) S. Dillon Ripley (Birds) Leonard P. Schultz (Fishes) Alexander Wetmore (Birds)

National Air and Space Museum

Director	Michael Collins
Deputy Director	Melvin B. Zisfein
Administrative Officer	John Whitelaw
Librarian	Catherine D. Scott
Acting Assistant Director (Aeronautics)	Louis S. Casey
Aircraft Propulsion	Robert B. Meyer, Jr., Curator
Assistant Director (Astronautics)	Frederick C. Durant III
Advisory Board	S. Dillon Ripley, Chairman ( <i>ex-officio</i> ) Major General Nils O. Oman, USAF Vice Admiral Maurice A. Weisner, USN Brig. General James L. Collins, USA Brig. General H. S. Hill, USMC Rear Admiral Robert E. Hammond, USCG Willis H. Shapley, NASA General Gustav Lundquist, FAA
Honorary	Mrs. Olive Ann Beech William E. Hall Elwood R. Quesada

Astrophysical Observatory

Director	Fred L. Whipple
Assistant Director (Management)	Robert V. Bartnik
Assistant Director (Science)	Charles A. Lundquist
Scientific Staff	Kaare Aksnes Arthur C. Allison Eugene H. Avrett Prabhu Bhatnagar Nathaniel P. Carleton Frederic Chaffee Jerome R. Cherniack Giuseppe Colombo Allan F. Cook Alex Dalgarno Robert J. Davis James C. DeFelice William A. Deutschman Dale F. Dickinson Giovanni G. Fazio Darrell Fernald Edward L. Fireman Fred A. Franklin Edward M. Gaposchkin Owen Gingerich Antanas Girnius Mario D. Grossi Katherine Haramundanis Gerald Hawkins

Henry F. Helmken  
Paul W. Hodge  
Luigi G. Jacchia  
Wolfgang Kalkofen  
Douglas Kleinmann  
Yoshihide Kozai  
David Latham  
Myron Lecar  
Carlton G. Lehr  
Martin Levine  
Hiram Levy II  
A. Edward Lilley  
Marvin Litvak  
Richard E. McCrosky  
Brian G. Marsden  
Ursula B. Marvin  
George H. Megrue  
Donald H. Menzel  
Lawrence W. Mertz  
Henri E. Mitler  
Paul A. Mohr  
James Moran  
Robert W. Noyes  
Costas Papaliolios  
Cecelia H. Payne-Gaposhkin  
Michael R. Pearlman  
Douglas T. Pitman  
Annette Posen  
Harrison E. Radford  
John B. Reid, Jr.  
George B. Rybicki  
Winfield W. Salisbury  
Rudolph E. Schild  
Zdenek Sekanina  
Chen-Yuan Shao  
I. Shapiro  
Jack W. Slowey  
Richard B. Southworth  
Frank Steinbrunn  
G. Jeffrey Taylor  
Wesley A. Traub  
Robert Vessot  
George Victor  
George Weiffenbach  
Trevor C. Weekes  
Charles A. Whitney  
Marlene Williamson  
John A. Wood

Consultants . . . . . Robert N. Anthony  
John Danziger  
Stanley Ross  
Robert Stein



	Pol Swings
	George Veis
	Natarajan Visvanathan
Director, Central Bureau for Satellite	
Geodesy . . . . .	George Veis
Director, Central Bureau for Astronomical	
Telegrams . . . . .	Brian G. Marsden
NAS Fellows . . . . .	Eoghan O'Mongain
	Steven Wofsy
	Eric Chaisson

Smithsonian Tropical Research Institute

Director . . . . .	Martin H. Moynihan
Special Assistant to Director . . . . .	Adela Gomez
Assistant Director (Science) . . . . .	Ira Rubinoff
Administrative Officer . . . . .	C. Neal McKinney
Manager, Barro Colorado Island . . . . .	Ernest Hayden
Manager, Naos Island . . . . .	Archibald Turner
Office Manager . . . . .	Arilla Kourany
Biologists . . . . .	Robert L. Dressler
	Peter W. Glynn
	Jeffrey B. Graham
	Judith Lang
	Egbert Leigh
	A. Stanley Rand
	Michael H. Robinson
	Roberta W. Rubinoff
	Neal G. Smith
	Hindrik Wolda
Honorary . . . . .	Charles F. Bennett, Jr.
	John F. Eisenberg
	Carmen Glynn
	Carlos Lehmann
	Robert H. MacArthur
	Giles W. Mead
	Ernst Mayr
	Barbara Robinson
	Patricio Sánchez
	W. John Smith
	C. C. Soper
	Paulo Vanzolini
	Martin Young

Radiation Biology Laboratory

Director . . . . .	William H. Klein
Assistant Director . . . . .	Walter A. Shropshire, Jr.
Anthropologist . . . . .	Robert Stuckenrath
Biochemists . . . . .	David L. Correll
	Maurice M. Margulies

Biologists .....	Elisabeth Gantt Rebecca Gettens William O. Smith, Jr.
Chemist .....	David Severn
Geneticist .....	Roy W. Harding, Jr.
Geochemist .....	James Mielke
Microbiologist .....	Maria Faust
Oceanographer .....	John Joyce
Physicists .....	Bernard Goldberg Richard Jeck
Physiological Ecologist .....	Bert Drake
Plant Physiologists .....	John Edwards Victor B. Elstad Leonard Price Robert L. Weintraub
Fellows .....	Clarke Brooks Edward DeFabo Richard Honeycutt Verna Lawson

### National Zoological Park

Director .....	Theodore H. Reed
Assistant Director .....	John Perry
Assistant Director, Department of Zoological Programs .....	Floris M. Garner
Chief, Administrative Services .....	Joseph J. McGarry
Captain, Police Division .....	Anthony J. Kadlubowski
Head, Planning and Design Office .....	Norman C. Melun
Chief, Division of Interpretation .....	Saul W. Schiffman
Curator, Division of Birds .....	(Vacant)
Curator, Division of Small Mammals and Primates .....	Harold J. Egoscue
Curator, Division of Reptiles .....	Jaren G. Horsley
Resident Scientist, Division of Scientific Research .....	John F. Eisenberg
Veterinarian, Division of Animal Health ..	Clinton W. Gray
Pathologist, Division of Pathology .....	Robert M. Sauer
Chief, Operations and Maintenance Department .....	Emanuel Petrella
Head, Automotive Division .....	Jesse Batts
Head, Grounds Division .....	John Monday
Head, Maintenance Division .....	Robert Ogilvie
Head, Mechanical Division .....	Theodore Runyan
Head, Labor Division .....	Carl F. Jackson
Associates in Ecology .....	S. Dillon Ripley Lee M. Talbot
Research Associates .....	Jean Delacour Gerald G. Montgomery George McKay Devra G. Kleiman Bernard C. Zook

	Nancy A. Muckenhirn
Collaborators . . . . .	Floris M. Garner
	Leonard J. Goss
	Carlton M. Herman
	Paul Leyhausen
	Charles R. Schroeder

### Office of Environmental Sciences

Director . . . . .	William L. Eilers
Program Director, AID Environmental Impact Studies . . . . .	Peter H. Freeman
Program Director, AID Waterborne Diseases Study . . . . .	Curt R. Schneider
Ecology Program	
Director . . . . .	Dale W. Jenkins
Deputy Director . . . . .	Lee M. Talbot <sup>22</sup>
Director, Center for Natural Areas . . .	Stephen L. Keiley
Director, Peace Corps Environmental Studies . . . . .	Robert K. Poole
Visiting Ecologist . . . . .	Lloyd V. Knutson
Oceanography and Limnology Program	
Director . . . . .	Robert P. Higgins
Deputy Director . . . . .	David K. Young <sup>23</sup>
Director, Mediterranean Marine Sorting Center . . . . .	William P. Davis
Director, Smithsonian Oceanographic Sorting Center . . . . .	H. Adair Fehlmann
Program Officer, CITRE Planning Pro- gram . . . . .	Stephen V. Smith
Chesapeake Bay Center for Environmental Studies	
Director . . . . .	Francis S. L. Williamson
Deputy Director . . . . .	John Kevin Sullivan
Center for Short-Lived Phenomena	
Director . . . . .	Robert Citron

### Center for the Study of Man

Director . . . . .	Sol Tax
Program Coordinator . . . . .	Sam Stanley

### Smithsonian Science Information Exchange

President . . . . .	David F. Hersey
Vice President, User Services . . . . .	Frank J. Kreysa
Director, User Education . . . . .	Richard C. Reeser
Vice President, Professional Services . . . .	Willis R. Foster

<sup>22</sup> On leave in 1971 to Council on Environmental Quality.

<sup>23</sup> Appointed effective June 1972. Dail W. Brown resigned March 1972.



Vice President, Data Processing . . . . .	Martin Snyderman
Secretary . . . . .	V. P. Verfuerrth
Treasurer . . . . .	David W. Lakamp
Assistant Treasurer . . . . .	Evelyn M. Roll
Science Division	
Director . . . . .	Willis R. Foster
Deputy, Life Sciences . . . . .	Charlotte M. Damron
Chief, Medical Sciences Branch . .	Faith F. Stephan
Chief, Behavioral Sciences Branch .	Rhoda Stolper
Chief, Social Sciences Branch . . .	Barbara F. Lundquist
Chief, Agriculture Sciences Branch	William T. Carlson
Chief, Biological Sciences Branch .	James R. Wheatley, Jr.
Deputy, Physical Sciences . . . . .	Samuel Liebman
Chief, Chemistry, Material and Engineering Branch . . . . .	Samuel Liebman
Chief, Physics, Mathematics and Electronics Branch . . . . .	Robert Summers
Chief, Earth Science Branch . . . . .	Joseph P. Riva, Jr.
Data Processing Division	
Director . . . . .	Martin Snyderman
Deputy . . . . .	Bernard L. Hunt
Chief, Input Services Branch . . . .	Jack DeVore
Chief, Systems Development Branch . . . . .	Bernard L. Hunt
Chief, Programming and Reports Services Branch . . . . .	Robert A. Kline
Chief, Computer Operations Branch	Paul Gallucci

### Fort Pierce Bureau<sup>24</sup>

Director . . . . .	I. Eugene Wallen
--------------------	------------------

### HISTORY AND ART

Assistant Secretary . . . . .	Charles Blitzer
Deputy . . . . .	Richard Grove
Bicentennial Coordinator . . . . .	Susan Hamilton

### The National Museum of History and Technology

Director . . . . .	Daniel J. Boorstin
Deputy Director . . . . .	Silvio A. Bedini
Assistant Director for Administration . . .	Robert G. Tillotson
Administrative Officer . . . . .	Virginia Beets
Historian . . . . .	Harold K. Skramstad
<i>Applied Arts</i>	
Chairman . . . . .	Carl H. Scheele

<sup>24</sup>Established 16 October 1971.

# Division of Graphic Arts

Associate Curators . . . . . Elizabeth M. Harris  
Peter C. Marzio

# Numismatics

Curators . . . . . Vladimir Clain-Stefanelli  
Elvira Clain-Stefanelli

# Photographic History

Curator . . . . . Eugene Ostroff  
Assistant Curator . . . . . David E. Haberstich

# Postal History

Curator . . . . . Carl H. Scheele  
Associate Curators . . . . . Franklin R. Bruns  
Reidar Norby

# Textiles

Curators . . . . . Rita J. Adrosko  
Grace R. Cooper  
Honorary . . . . . Cora Lee C. Gilliland  
(Numismatics)  
R. Henry Norweb (Numismatics)

# Cultural History

Chairman . . . . . C. Malcolm Watkins

# Costume and Furnishings

Curator . . . . . Rodris Roth  
Assistant Curator . . . . . Claudia B. Kidwell

# Ethnic and Western Cultural History

Curators . . . . . Richard E. Ahlborn  
C. Malcolm Watkins

# Musical Instruments

Curator . . . . . John T. Fesperman  
Associate Curator . . . . . Cynthia A. Hoover

# Preindustrial History

Curator . . . . . C. Malcolm Watkins  
Associate Curator . . . . . Anne C. Golovin  
Honorary . . . . . Mrs. Arthur M. Greenwood  
David W. Hinshaw  
Ivor Noël Hume  
Edward B. Jelks  
Robert H. McNulty  
Anne W. Murray (Curator  
Emeritus, Costume)  
Joan Pearson Watkins

# Industries

Chairman . . . . . John H. White, Jr.

# Agriculture and Mining

Curator . . . . . John T. Schlebecker  
Associate Curator . . . . . John N. Hoffman

# Ceramics and Glass

Curators . . . . . J. Jefferson Miller II  
Paul V. Gardner

# Manufacturing

Curator . . . . . John H. White, Jr.

## Transportation

Curators	John H. White, Jr. Melvin H. Jackson
Honorary	Peter B. Bell Philip W. Bishop Howard I. Chapelle (Historian Emeritus) Hans Syz (Ceramics)

*National and Military History*

Chairman	Edgar M. Howell
Historic Archeology	
Curator	Mendel L. Peterson
Military History	
Curators	Edgar M. Howell Craddock R. Goins, Jr.

## Naval History

Curators	Philip K. Lundeberg Harold D. Langley
----------	--

## Political History

Curator	Margaret B. Klapthor
Associate Curator	Herbert R. Collins
Honorary	William Rea Furlong (Flag History)

*Science and Technology*

Chairman	Bernard S. Finn
Senior Scientific Scholar	Robert P. Multhauf
Principal Investigator (Computer History Project)	Henry S. Tropp
Electricity and Nuclear Energy	
Curator	Bernard S. Finn
Curator (Mathematics)	Uta C. Merzbach
Mechanical and Civil Engineering	
Curators	Robert M. Vogel Edwin A. Battison Otto Mayr

## Medical Sciences

Curator	Sami K. Hamarneh
Associate Curator	Audrey B. Davis

## Physical Sciences

Curator	Walter F. Cannon
Associate Curators	Deborah J. Warner Jon B. Eklund
Honorary	Anthony R. Michaelis (Scientific Instruments) Derek J. De Solla Price (Scientific Instruments)

## Archives of American Art

Director	William E. Woolfenden
Deputy Director-Archivist	Garnett McCoy



Administrative Assistant	Howard McCall
Curator of Manuscripts	Arthur J. Breton
Assistant Curator of Manuscripts	Elsie F. Freivogel
Area Directors	Butler Coleman (New York) Robert Brown (Northeast)
Field Researchers	F. Ivor D. Avellino (New York) Sylvia Loomis (Southwest)
Oral History	Paul Cummings
Trustees	Howard W. Lipman, President Irving F. Burton, Vice President James Humphry III, Vice President Mrs. Otto L. Spaeth, Vice President Girard L. Spencer, Treasurer Miss Milka Iconomoff, Secretary Harry Baldwin Edmond duPont Joseph H. Hirshhorn Harold O. Love Russell Lynes Robert L. McNeil, Jr. Mrs. Alfred Negley Abraham Melamed Mrs. E. Bliss Parkinson Henry Pearlman Mrs. Dana M. Raymond Mrs. William L. Richards E. P. Richardson Chapin Riley Edward M. M. Warburg Willis F. Woods S. Dillon Ripley, <i>ex officio</i> Charles Blitzer, <i>ex officio</i> Lawrence A. Fleischman, Honorary Mrs. Edsel B. Ford, Honorary
Advisory Committee	James Humphry III, Chairman Milton W. Brown Lloyd Goodrich Eugene C. Goossen James J. Heslin John Howat Bernard Karpel Edgar Kaufmann, Jr. John A. Kouwenhoven Karl Kup Eric Larrabee Abram Lerner A. Hyatt Mayor Jules Prown J. T. Rankin Daniel J. Reed Charles van Ravenswaay Marvin S. Sadik

Joshua C. Taylor  
 William B. Walker  
 Richard P. Wunder

### Freer Gallery of Art

Director .....	Harold P. Stern
Assistant Director .....	Thomas Lawton
Assistant Curator, Chinese Art .....	Hin-cheung Lovell
Assistant Curator, Near Eastern Art .....	Esin Atil
Head Conservator, Technical Laboratory .	W. Thomas Chase
Chemist, Technical Laboratory .....	John Winter
Research Curator, Far Eastern Ceramics .	John A. Pope
Research Consultant, Technical Laboratory .....	Rutherford J. Gettens
Research Assistant, Far Eastern Ceramics	Josephine H. Knapp
Research Assistant, Herzfeld Archive ...	Joseph M. Upton
Librarian .....	Priscilla P. Smith
Honorary Associates .....	Richard Edwards Calvin French

### National Collection of Fine Arts

Director .....	Joshua C. Taylor
Administrative Officer .....	George W. Riggs
Curator, Exhibition and Design .....	Harry Lowe
Curator, Contemporary Painting and Sculpture .....	Adelyn D. Breeskin
Associate Curator, 18th- and 19th-Century Painting and Sculpture .....	William H. Truettner
Curator, Prints and Drawings .....	Janet A. Flint
Administrator, Renwick Gallery .....	Lloyd E. Herman
Assistant Curator, Renwick Gallery .....	Arthur Feldman
Curator of Education .....	Darrel L. Sewell
Special Assistant for the Collections .....	Robert Tyler Davis
Coordinator of Research .....	Lois M. Fink
Coordinator, Bicentennial Inventory of American Paintings .....	Abigail Booth
Chief, Smithsonian Institution Traveling Exhibition Service .....	Dennis Gould
Chief, International Art Program .....	Lois A. Bingham
Senior Conservator .....	Anton Konrad
Registrar .....	Elisabeth Strassmann
Editor, Office of Publication .....	Georgia M. Rhoades
Head Librarian, NCFA/NPG .....	William B. Walker
Coordinator of Special Projects .....	Donald R. McClelland
Public Affairs Officer .....	Benjamin Ruhe
Photographer .....	Lowell A. Kenyon
National Collection of Fine Arts Commission .....	Thomas C. Howe, Chairman H. Page Cross, Vice Chairman

	S. Dillon Ripley, Secretary
	Leonard Baskin
	Thomas S. Buechner
	William A.M. Burden
	David E. Finley
	Martin Friedman
	Lloyd Goodrich
	Walker Hancock
	Bartlett H. Hayes, Jr.
	August Heckscher
	Mrs. Jaquelin H. Hume
	Henry P. McIlhenny
	Ogden M. Pleissner
	Charles H. Sawyer
	Mrs. Otto L. Spaeth
	George B. Tatum
	Otto Wittmann
Honorary Members . . . . .	Alexander Wetmore
	Leonard Carmichael
	Gilmore D. Clarke
	Paul Mellon
	Stow Wengenroth
	Andrew Wyeth

### National Portrait Gallery

Director . . . . .	Marvin S. Sadik
Assistant Director and Administrative Officer . . . . .	Douglas E. Evelyn
Historian . . . . .	Lillian B. Miller
Assistant Historian . . . . .	Beverly J. Cox
Research Historian . . . . .	Frederick S. Voss
Curator . . . . .	Robert G. Stewart
Associate Curator . . . . .	Monroe Fabian
Keeper of the Catalogue . . . . .	Wilford P. Cole
Senior Research Assistant . . . . .	Mona Dearborn
Curator of Education . . . . .	James Vivian <sup>25</sup>
Assistant Curator of Education . . . . .	Robert Works <sup>26</sup>
Chief, Exhibits Design . . . . .	James J. Shelton
Assistant Chief, Exhibits Design . . . . .	Michael Carrigan
Librarian (NPG-NCFA) . . . . .	William B. Walker
Senior Conservator . . . . .	Anton Konrad
Conservator . . . . .	Felrath Hines
Registrar . . . . .	Jon D. Freshour
NPG Commission . . . . .	John Nicholas Brown, Chairman
	Whitfield J. Bell, Jr.
	Lewis Deschler
	David E. Finley
	Wilmarth Sheldon Lewis

<sup>25</sup> Resigned 16 June 1972.

<sup>26</sup> Resigned 16 June 1972.



	Robert L. McNeil, Jr.
	Andrew Oliver
	Jules D. Prown
	E. P. Richardson
	Robert Hilton Smith
	Barbara Tuchman
Ex-officio . . . . .	Chief Justice of the United States Secretary, Smithsonian Institution Director, National Gallery of Art

### Joseph H. Hirshhorn Museum and Sculpture Garden

Director . . . . .	Abram Lerner
Administrative Officer . . . . .	Joseph Sefekar
Curator of Exhibitions . . . . .	Douglas MacAgy
Associate Curator . . . . .	Cynthia Jaffee McCabe
Assistant Curator . . . . .	Inez Garson
Librarian . . . . .	Anna Brooke
Registrar . . . . .	Sandra L. Pearson
Museum Specialists . . . . .	James J. Elias Frank B. Gettings Gerald O'Connor

### Cooper-Hewitt Museum of Decorative Arts and Design

Director . . . . .	Lisa Suter Taylor
Administrator and Curator of Collections . . . . .	Christian Rohlfing
Associate Curator of Decorative Arts . . . . .	Janet Thorpe
Assistant Curator of Decorative Arts . . . . .	Catherine Frangiamore
Curator of Drawings and Prints . . . . .	Elaine Evans Dee
Technician for Drawings and Prints . . . . .	Xenia Cage
Assistant Curator of Textiles . . . . .	Milton Sunday
Consultant for Textiles . . . . .	Alice Baldwin Beer
Registrar . . . . .	Mary F. Blackwelder
Librarian . . . . .	Edith Adams <sup>27</sup>
Assistant Librarian . . . . .	Eliane Zuesse
Building Manager . . . . .	Manuel Perez
Museum Secretary . . . . .	Rowena MacLeod
Museum Receptionist . . . . .	Deirdre MacGuire

### National Armed Forces Museum Advisory Board

Director . . . . .	John H. Magruder III
Assistant Director . . . . .	James S. Hutchins
Administrative Officer . . . . .	Miriam H. Uretz
Collections . . . . .	John M. Elliott
Historian . . . . .	James J. Stokesberry
Registrar . . . . .	Lorene B. Mayo

<sup>27</sup> Resigned 22 October 1971.

Advisory Board	<p>The Honorable John Nicholas Brown, Chairman</p> <p>The Honorable Earl Warren</p> <p>Secretary of Army</p> <p>Secretary of Navy</p> <p>Secretary of Air Force</p> <p>Lieutenant General Milton G. Baker, Retired</p> <p>Robert C. Baker</p> <p>The Honorable Alexander P. Butterfield</p> <p>William H. Perkins, Jr.</p>
Ex officio	<p>Secretary of Defense</p> <p>Secretary, Smithsonian Institution</p>

### Joseph Henry Papers

Editor	Nathan Reingold
Assistant Editor	Arthur P. Molella
Staff Historian	James M. Hobbins
Research Assistant	Kathleen Waldenfels
Administrative Officer	Beverly Jo Lepley

### Officer of American Studies

Director	Wilcomb E. Washburn
----------	---------------------

### Office of Academic Studies

Executive Officer	Edward S. Davidson
Program Officer	Gretchen Gayle

### Smithsonian Institution Archives

Archivist	Richard H. Lytle
Assistant Archivists	<p>Donald Danuloff<sup>28</sup></p> <p>William A. Deiss<sup>29</sup></p> <p>James Steed</p> <p>Alan L. Bain<sup>30</sup></p>

### Office of Seminars

Director	Wilton S. Dillon
Administrative Assistant	Dorothy Richardson
Conference Specialist	Stephany Knight
Assistant	Frances Miller

<sup>28</sup> Retired 17 September 1971.

<sup>29</sup> Appointed 31 October 1971.

<sup>30</sup> Appointed 30 April 1972.





Deputy Assistant Director of Libraries for	
Bureau Services . . . . .	L. Frances Jones
Administrative Librarian . . . . .	Thomas L. Wilding
Administrative Assistant . . . . .	Mary C. Quinn
Access Services	
Chief . . . . .	Jack F. Marquardt
Assistant Chief . . . . .	A. James Spohn
Library of Congress Liaison Librarian	Ruth E. Blanchard <sup>38</sup>
Bibliographer in the History of Science . .	Jack S. Goodwin
Technical Services	
Chief . . . . .	Vija L. Karklins
Acquisitions Division	
Acting Chief . . . . .	Mildred D. Raitt
Serials Librarian . . . . .	Edna S. Suber
Gift and Exchange Librarian . . . .	Mary Clare Cahill
Special Assistant assigned to	
Acquisitions . . . . .	Mary L. Horgan <sup>39</sup>
Catalog Division	
Acting Chief . . . . .	Bertha S. Sohn
Catalogers . . . . .	Angeline D. Ashford
	Charles H. King
	Helen S. Nordberg
	Margaret A. Sealar
	Carol L. Wohlford
Branch Librarians	
Cooper-Hewitt Museum of Decorative	
Arts and Design . . . . .	Edith Adams <sup>40</sup>
Department of Botany . . . . .	Ruth F. Schallert
Freer Gallery of Art . . . . .	Pricilla B. Smith
Hirshorn Museum and Sculpture	
Garden . . . . .	Anna M. Brooke
National Air and Space Museum . . . .	Catherine D. Scott <sup>41</sup>
National Collection of Fine Arts and	
National Portrait Gallery . . . . .	William B. Walker
National Museum of History and	
Technology . . . . .	Frank A. Pietropaoli
National Museum of Natural History .	Jean C. Smith (acting)
Smithsonian Astrophysical	
Observatory . . . . .	Joyce M. Rey
Smithsonian Tropical Research	
Institute . . . . .	Alcira Mejia
Woodrow Wilson International Center	
for Scholars . . . . .	Mary Anglemyer
Branch Librarian Reference Staff	
National Collection of Fine Arts and	
National Portrait Gallery . . . . .	Sara B. Hinnegan <sup>42</sup>

<sup>38</sup> Retired 31 December 1971.

<sup>39</sup> Retired 14 January 1972.

<sup>40</sup> Resigned 22 October 1972.

<sup>41</sup> Appointed 15 May 1972.

<sup>42</sup> Appointed 2 August 1971.

National Museum of History and  
Technology . . . . . Charles G. Berger

## PUBLIC SERVICE

Acting Assistant Secretary . . . . .	Julian T. Euell <sup>43</sup>
Deputy Assistant Secretary . . . . .	Robert W. Mason
Administrative Assistant . . . . .	Ruth Frazier

## Smithsonian Associates

Executive Director . . . . .	Robert W. Mason
Director of Plans and Marketing . . . . .	Robert H. Angle
National Program	
Director, Reception Center . . . . .	Mary Grace Potter
Manager, Domestic Study Tours . . . . .	Patricia N. Kilkenny
Resident Program	
Director . . . . .	Susan Hamilton
Business Manager . . . . .	Marlin Johnson
Special Events Assistant . . . . .	Carolyn Amundson
Subscription Assistant . . . . .	Carolyn A. Hecker
Day Tours and Social Secretary . . . . .	Moya B. King

## Office of Public Affairs

Director . . . . .	Carl W. Larsen
Special Assistant to the Director . . . . .	Jewell S. Dulaney
Chief, News Bureau . . . . .	Mary M. Krug
Art Information Specialist . . . . .	Benjamin P. Ruhe
Science Information Specialist . . . . .	Thomas R. Harney
Chief, Public Affairs, MHT . . . . .	Irwin Goodwin
Radio Correspondent . . . . .	Cynthia Helms
Publications Officer . . . . .	William O. Craig

## Office of International Activities

Acting Director	Kennedy B. Schmertz
Foreign Currency Program	
Director	Kennedy B. Schmertz
Deputy Director	Kenneth D. Whitehead
Program Officer	Richard T. Conroy
Grants Technical Assistants	Betty J. Wingfield Judy E. Rodgers
Administrative Assistant	Jean A. C. Harrell

## Division of Performing Arts

Director . . . . .	James R. Morris
Deputy Director . . . . .	Richard P. Lusher

<sup>43</sup>Effective 1 July 1972.

Director, Festival of American Folklife . .	Ralph C. Rinzler
Assistant Director of Festival of American Folklife . . . . .	Gerald L. Davis
Director, Indian Awareness Program . . . .	Clydia Nahwooksy
Director, Jazz Program . . . . .	Martin Williams
Planning Officer . . . . .	Marian A. Hope
Operations Officer . . . . .	Manuel Melendez
Director, Touring Performances . . . . .	Mark Mason
Manager, Box Office . . . . .	Harry Bagdasian
Administrative Officer . . . . .	Anne Anders

Smithsonian Museum Shops

Director . . . . .	William W. Rowan III
Administrative Assistant . . . . .	Barbara A. Brand
Store Operations . . . . .	Lillian R. Cutler
Book Buyer . . . . .	Florence R. Lloyd

Belmont Conference Center

Director . . . . .	Joanne S. Baker Kugel
--------------------	-----------------------

Anacostia Neighborhood Museum

Director . . . . .	John R. Kinard
Assistant Director . . . . .	Zora B. Martin
Research and Design Coordinator . . . . .	Larry Erskine Thomas
Exhibit Specialist . . . . .	James E. Mayo
Program Analyst, Center for Anacostia Studies . . . . .	Thomas J. Cantwell
Mobile Coordinator . . . . .	Fletcher Smith
Assistant to the Director for Special Projects . . . . .	Balcha Fellows

*Smithsonian* (magazine)

Editor . . . . .	Edward K. Thompson
Members, Board of Editors . . . . .	Ralph Backlund
	Grayce P. Northcross
	James K. Page, Jr.
	Edwards Park
General Manager . . . . .	Joseph J. Bonsignore
Advertising Director . . . . .	Thomas H. Black
Circulation-Promotion Director . . . . .	Anne Keating

Smithsonian Institution Press

Director . . . . .	Gordon Hubel
Managing Designer . . . . .	Stephen Kraft
Promotion Manager . . . . .	Maureen R. Jacoby



Business Manager	Eileen M. McCarthy
Series Managing Editor	Albert L. Ruffin, Jr.
Series Production Manager	Charles L. Shaffer
Editors	Mary Frances Bell
	Ernest E. Biebighauser
	Louise J. Heskett
	Joan B. Horn
	Mary M. Ingraham
	John S. Lea
	Nancy L. Powars
Writer-Editor	Hope G. Pantell
Designers	Crimilda Pontes
	Elizabeth Sur

### Reading Is Fundamental

Chairman of Advisory Board	Mrs. Robert S. McNamara
President	William B. Mullins
Executive Director	Eleanor Smollar
Program Director	Barbara B. Atkinson

### Office of Elementary and Secondary Education

Acting Director	John W. Bingham
Staff Associates	Teresa E. Covacevich (Art History)
	David W. Estabrook (History and Technology)
	Robert S. Harding (History)
	Samuel C. Rizzetta (Biology)
Coordinator, Volunteer Programs	Joan C. Madden

### National Gallery of Art

Board of Trustees	The Chief Justice of the United States, Warren E. Burger, Chairman
	The Secretary of State, William P. Rogers
	The Secretary of the Treasury, John B. Connally
	The Secretary of the Smithsonian Institution, S. Dillon Ripley, <i>ex officio</i>
General Trustees	Paul Mellon
	Dr. Franklin D. Murphy
	Lessing J. Rosenwald
	Stoddard M. Stevens
	John Hay Whitney
President	Paul Mellon
Vice President	John Hay Whitney
Director	J. Carter Brown

Assistant to the Director, Music . . . . .	Richard Bales
Assistant to the Director, National Programs . . . . .	W. Howard Adams
Assistant to the Director, Public Information . . . . .	Katherine Warwick
Construction Manager . . . . .	Robert C. Engle
Planning Consultant . . . . .	David W. Scott
Secretary and General Counsel . . . . .	E. James Adams
Assistant Director . . . . .	Charles P. Parkhurst
Curator of American Painting . . . . .	William P. Campbell
Curator of Painting . . . . .	H. Lester Cooke
Curator of Graphic Arts . . . . .	Christopher J. White
Curator of Drawings . . . . .	Konrad Oberhuber
Curator of Decorative Arts . . . . .	Grose Evans
Curator of Sculpture . . . . .	C. Douglas Lewis, Jr.
Chief, Education and Public Programs	Margaret Bouton
Editor . . . . .	Theodore S. Amussen
Chief, Photographic Laboratory . . . . .	Henry B. Beville
Curator of Photographic Archives . . . . .	Alessandro Contini-Bonacossi
Treasurer . . . . .	Lloyd D. Hayes
Assistant Treasurer . . . . .	James W. Woodard
Administrator . . . . .	Joseph G. English
Acting Deputy Administrator . . . . .	Charles B. Walstrom
Assistant to the Administrator (Scientific and Technical) . . . . .	Sterling P. Eagleton
Personnel Officer . . . . .	Jeremiah J. Barrett

### John F. Kennedy Center for the Performing Arts

Honorary Chairmen . . . . .	Mrs. Richard M. Nixon Mrs. Lyndon B. Johnson Mrs. Aristotle Onassis Mrs. Dwight D. Eisenhower
Chairman . . . . .	Roger L. Stevens
Vice Chairmen . . . . .	Harry C. McPherson, Jr. Charles H. Percy Henry Strong
General Counsel . . . . .	Ralph E. Becker
Secretary . . . . .	K. LeMoyne Billings
Treasurer . . . . .	Robert C. Baker
Music Director . . . . .	Julius Rudel
Executive Director of Performing Arts . . . . .	Martin Feinstein
Comptroller . . . . .	Aaron Spaulding
General Manager of Theaters . . . . .	Alexander Morr
Director of Publicity and Promotion . . . . .	Wayne Shilkret
Assistant Treasurers . . . . .	Kenneth Birgfeld Paul J. Bisset John L. Bryant L. Parker Harrell, Jr. Jarvis Moody Henry Strong

Woodrow Wilson International Center for Scholars

Director . . . . . Benjamin H. Read  
Deputy Director . . . . . Albert Meisel



## Appendix 5

### PUBLICATIONS OF THE SMITHSONIAN INSTITUTION PRESS IN FISCAL YEAR 1972

#### Research in Art, History, and Science

##### NON-SERIES PUBLICATIONS

- Angel, J. Lawrence. *The People of Lerna: Analysis of a Prehistoric Aegean Population*. 159 pages, 5 figures, 26 plates, 15 tables. 20 August 1971. Cloth. \$17.50
- List, Robert J., Preparer. *Smithsonian Meteorological Tables*. 6th revised edition, 5th reprint. 527 pages. 10 September 1971 (originally published as *Smithsonian Miscellaneous Collections*, volume 114). Cloth. \$15.00
- Meester, J., and H.W. Setzer, editors. *The Mammals of Africa: An Identification Manual*. 10 September 1971 (Parts 2, 7, 9, 12, 13) and 23 May 1972 (Parts, 4, 5, 10, 15, 15.1). Loose leaf. \$5.00 per fascicle.
- O'Connor, Francis V., editor. *The New Deal Art Projects: An Anthology of Memoirs*. ix + 339 pages, 53 illustrations. 27 April 1972. Cloth. \$12.50.
- Pantell, Hope. *Our Restless Planet: A Geologist's View of the Earth*. 30 pages, illustrated. 22 May 1972. Paper. \$2.00
- Phebus, George, Jr. *Alaskan Eskimo Life in the 1890s as Sketched by Native Artists*. 168 pages, 120 illustrations. 28 February 1972. Cloth. \$15.00
- Plowden, David. *The Hand of Man on America*. 134 pages, 75 illustrations. 20 August 1971. Cloth. \$12.50.

##### BUREAU OF AMERICAN ETHNOLOGY BULLETIN (Final volume of series)

200. "List of Publications of the Bureau of American Ethnology, with Index to Authors and Titles." 134 pages. 14 December 1971.

##### SMITHSONIAN ANNALS OF FLIGHT

5. Leonard S. Hobbs. "The Wright Brothers' Engines and Their Design." x + 71 pages, 17 figures. 27 October 1971.
7. Hugo T. Byttebier. "The Curtiss D-12 Aero Engine." vii + 109 pages, 47 figures, 1 table. 10 May 1972.
8. Stanley R. Mohler and Bobby H. Johnson. "Wiley Post, His *Winnie Mae*, and the World's First Pressure Suit." vii + 127 pages, 139 figures. 22 November 1971.

##### SMITHSONIAN CONTRIBUTIONS TO ANTHROPOLOGY

14. Don D. Fowler and Catherine S. Fowler, editors. "Anthropology of the Numa: John Wesley Powell's Manuscripts on the Numic Peoples of Western North

- America, 1868-1880." xiii + 307 pages, 36 figures, 9 maps, 1 table. 10 December 1971.
15. W. Raymond Wood. "Biesterfeldt: A Post-Contact Coalescent Site on the Northeastern Plains." xv + 108 pages, 16 figures, 20 plates, 6 text tables, 3 appendix tables. 17 August 1971.
  16. William W. Fitzhugh. "Environmental Archeology and Cultural Systems in Hamilton Inlet, Labrador: A Survey of the Central Labrador Coast from 3000 B.C. to the Present." xix + 299 pages, 80 figures, 87 plates, 30 tables. 31 May 1972.

#### SMITHSONIAN CONTRIBUTIONS TO BOTANY

4. Mason E. Hale, Jr. "Morden-Smithsonian Expedition to Dominica: The Lichens (Parmeliaceae)." 25 pages, 29 figures. 31 August 1971.
5. Barrett Nelson Rock. "The Woods and Flora of the Florida Keys: 'Pinnatae'." 35 pages, 35 figures, 4 tables. 4 February 1972.
7. F. R. Fosberg and M.-H. Sachet. "*Thespesia populnea* (L.) Solander ex Correa and *Thespesia populneoides* (Roxburgh) Kosteletsky (Malvaceae)." 13 pages, 6 figures. 17 April 1972.
8. F. R. Fosberg and M.-H. Sachet. "Three Indo-Pacific *Thelypteris* Species Reinterpreted and a New African Species Described." 10 pages, 3 figures. 5 May 1972.

#### SMITHSONIAN CONTRIBUTIONS TO THE EARTH SCIENCES

7. William G. Melson. "Geology of the Lincoln Area, Lewis and Clark County, Montana." 29 pages, 13 figures, 8 tables. 15 October 1971.
8. Daniel J. Stanley, Donald J.P. Swift, Norman Silverberg, Noel P. James, and Robert G. Sutton. "Late Quaternary Progradation and Sand *Spillover* on the Outer Continental Margin off Nova Scotia, Southeast Canada." 88 pages, 83 figures, 6 tables. 11 April 1972.

#### SMITHSONIAN CONTRIBUTIONS TO PALEOBIOLOGY

6. Alan H. Cheetham. "Functional Morphology and Biofacies Distribution of Cheilostome Bryozoa in the Danian Stage (Paleocene) of Southern Scandinavia." 87 pages, 29 figures, 17 plates, 10 tables. 27 September 1971.
7. Richard H. Benson. "A New Cenozoic Deep-Sea Genus *Abyssocythere* (Crustacea: Ostracoda; Trachyleberididae), with Descriptions of Five New Species." 25 pages, 12 figures, 3 plates, 1 table. 11 August 1971.
8. Richard S. Boardman. "Mode of Growth and Functional Morphology of Autozooids in Some Recent and Paleozoic Tubular Bryozoa." 51 pages, 6 figures, 11 plates. 23 August 1971.
9. Frederick J. Collier, compiler. "Catalog of Type Specimens of Invertebrate Fossils: Conodonta." 256 pages, 1 figure. 23 September 1971.
10. Porter M. Kier. "Tertiary and Mesozoic Echinoids of Saudi Arabia." 242 pages, 50 figures, 67 plates, 1 table. 14 June 1972.
11. G. Arthur Cooper. "Homeomorphy in Recent Deep-Sea Brachiopods." 25 pages, 5 figures, 4 plates. 10 March 1972.
13. Porter M. Kier. "Upper Miocene Echinoids from the Yorktown Formation of Virginia and Their Environmental Significance." 41 pages, 7 figures, 10 plates, 2 tables. 10 April 1972.

## SMITHSONIAN CONTRIBUTIONS TO ZOOLOGY

50. Allan Watson. "An Illustrated Catalog of the Neotropic Arctiinae Types in the United States National Museum (Lepidoptera: Arctiidae), Part I." 361 pages, 252 plates. 2 June 1971. [Not reported in SY 1971.]
58. J. Laurens Barnard. "Keys to the Hawaiian Marine Gammaridea, 0-30 Meters." 135 pages, 68 figures. 23 September 1971.
63. Alan Brindle. "Bredin-Archbold-Smithsonian Biological Survey of Dominica: The Dermaptera (Earwigs) of Dominica." 25 pages, 27 figures. 7 July 1971.
69. James A. Peters. "Biostatistical Programs in BASIC Language for Time-Shared Computers: Coordinated with the Book 'Quantitative Zoology'." 46 pages. Reprinted 1 March 1972, Original 10 March 1971.
76. Neil C. Hulings, editor. "Proceedings of the First International Conference on Meiofauna." ix + 205 pages, 68 figures, 9 tables. 30 December 1971.
81. Horton H. Hobbs, Jr. "The Entocytherid Ostracods of Mexico and Cuba." 55 pages, 31 figures, 1 table. 15 July 1971.
84. William D. Field. "Butterflies of the Genus *Vanessa* and of the Resurrected Genera *Bassaris* and *Cynthia* (Lepidoptera: Nymphalidae). 105 pages, 160 figures. 5 October 1971.
85. Ernest A. Lachner and Robert E. Jenkins. "Systematics, Distribution, and Evolution of the Chub Genus *Nocomis* (Girard) (Pisces, Cyprinidae) of Eastern United States, with Descriptions of New Species." 97 pages, 30 figures, 27 tables. 17 August 1971.
87. Ju-Shey Ho. "Parasitic Copepods of the Family Chondracanthidae from Fishes of Eastern North America." 39 pages, 26 figures. 7 July 1971.
90. Robert E. Jenkins and Ernest A. Lachner. "Criteria for Analysis and Interpretation of the American Fish Genera *Nocomis* Girard and *Hybopsis* Agassiz." 15 pages, 1 figure, 4 tables. 12 November 1971.
91. Ernest A. Lachner and Robert E. Jenkins. "Systematics, Distribution, and Evolution of the *Nocomis biguttatus* Species Group (Family Cyprinidae: Pisces) with a Description of a New Species from the Ozark Upland." 28 pages, 8 figures, 9 tables. 6 October 1971.
92. Ernest A. Lachner and Martin L. Wiley. "Populations of the Polytypic Species *Nocomis leptocephalus* (Girard) with a Description of a New Subspecies." 35 pages, 4 figures, 15 tables. 12 November 1971.
93. C. E. Machado-Allison and Rafael Antequera. "Notes on Neotropical Mesostigmata VI: Four New Venezuelan Species of the Genus *Periglischrus* (Acarina: Spinturnicidae)." 16 pages, 61 figures. 29 July 1971.
95. J. F. Gates Clarke. "Neotropical Microlepidoptera XIX: Notes on and New Species of Oecophoridae (Lepidoptera)." 39 pages, 26 figures, 3 plates. 9 September 1971.
98. Fenner A. Chace, Jr. "The Shrimps of the Smithsonian-Bredin Caribbean Expeditions with a Summary of the West Indian Shallow-water Species (Crustacea: Decapoda: Natantia)." x + 179 pages, 61 figures. 18 February 1972.
99. Nabil N. Youssef. "Topography of the Cephalic Musculature and Nervous System of the Honey Bee *Apis mellifera* Linnaeus." 54 pages, 10 figures, 5 tables. 30 December 1971.
100. Norman Marston. "Taxonomic Study of the Known Pupae of the Genus *Anthrax* (Diptera: Bombyliidae) in North and South America." 17 pages, 4 plates, 1 table. 17 August 1971.
101. John F. Eisenberg and Melvyn Lockhart. "An Ecological Reconnaissance of Wilpattu National Park, Ceylon." 118 pages, 76 figures, 16 tables. 3 May 1972.



102. Robert J. Menzies and Milton A. Miller. "Systematics and Zoogeography of the Genus *Synidotea* (Crustacea: Isopoda) with an Account of Californian Species." 33 pages, 12 figures, 5 tables. 4 February 1972.
103. J. Laurens Barnard. "Gammaridean Amphipoda of Australia, Part I." 333 pages, 194 figures, 1 table. 3 May 1972.
104. Marian H. Pettibone. "Revision of Some Species Referred to *Leptonereis*, *Nicon*, and *Laeonereis* (Polychaeta: Nereididae)." 53 pages, 27 figures. 13 October 1971.
105. Horton H. Hobbs, Jr., and Thomas C. Barr, Jr. "Origins and Affinities of the Troglobitic Crayfishes of North America (Decapoda: Astacidae), II: Genus *Orconectes*." 84 pages, 16 figures. 10 March 1972.
106. W. Donald Duckworth. "Neotropical Microlepidoptera XX: Revision of the Genus *Setiostoma* (Lepidoptera: Stenomidae)." 45 pages, 62 figures, 2 plates, 2 maps. 13 October 1971.
107. James A. Peters. "A New Approach in the Analysis of Biogeographical Data." 28 pages, 15 figures, 2 tables. 21 October 1971.
108. Charles A. Triplehorn. "A Review of the Genus *Zopherus* of the World (Coleoptera: Tenebrionidae)." 24 pages, 4 plates. 7 February 1972.
109. Marian H. Pettibone. "Partial Revision of the Genus *Sthenelais* Kinberg (Polychaeta: Sigalionidae) with Diagnoses of Two New Genera." 40 pages, 24 figures. 21 October 1971.
110. Herman A. Scullen. "Review of the Genus *Cerceris* Latreille in Mexico and Central America (Hymenoptera: Sphecidae)." 121 pages, 173 figures. 30 June 1972.
111. S. Dillon Ripley and Gorman M. Bond. "Systematic Notes on a Collection of Birds from Kenya." 21 pages, 1 figure, 16 November 1971.
112. Victor G. Springer and William F. Smith-Vaniz. "Mimetic Relationships Involving Fishes of the Family Blenniidae." 36 pages, 4 figures, 7 plates, 2 tables. 2 February 1972.
113. Harry W. Allen. "A Monographic Study of the Subfamily Tiphinae (Hymenoptera: Tiphidae) of South America." 76 pages, 57 figures. 26 April 1972.
114. Paul D. Hurd, Jr., and E. Gorton Linsley. "Parasitic Bees of the Genus *Holcopasites* Ashmead (Hymenoptera: Apoidea)." 41 pages, 16 figures, 1 table. 10 March 1972.
115. Howard E. Evans. "Bredin-Archbold-Smithsonian Biological Survey of Dominica: Aculeate Wasps (Hymenoptera: Scolioidea, Vespoidea, Pompiloidea, Sphecoidea)." 19 pages, 20 figures. 3 March 1972.
116. Edward W. Baker and Donald M. Tuttle. "New Species and Further Notes on the Tetranychidae Mostly from the Southwestern United States (Acarina: Tetranychidae and Tenuipalpidae)." 37 pages, 70 figures. 10 April 1972.
117. Horton H. Hobbs, Jr. "The Subgenera of the Crayfish Genus *Procambarus* (Decapoda: Astacidae)." 22 pages, 20 figures, 1 table. 4 February 1972.
118. Oliver S. Flint, Jr. "Studies of Neotropical Caddisflies. XIII: The Genus *Ochrotrichia* from Mexico and Central America (Trichoptera: Hydroptilidae)." 28 pages, 78 figures. 3 March 1972.
119. Marjorie Estelle Carter and Janet M. Bradford. "Postembryonic Development of Three Species of Freshwater Harpacticoid Copepoda." 26 pages, 14 figures, 1 table. 24 May 1972.
122. Carl F.W. Muesebeck. "Nearctic Species of Scelionidae (Hymenoptera: Proctotrupoidea) that Parasitize the Eggs of Grasshoppers." 33 pages, 51 figures. 21 June 1972.

123. Roger F. Cressey. "Revision of the Genus *Alebion* (Copepoda: Caligoida)." 29 pages, 132 figures. 24 May 1972.

## SMITHSONIAN STUDIES IN HISTORY AND TECHNOLOGY

7. Grace Rogers Cooper. "The Copp Family Textiles." viii + 65 pages, 68 figures, 3 tables. 27 July 1971.
9. Paul J. Scheips. "Hold the Fort! The Story of a Song from the Sawdust Trail to the Picket Line." iv + 57 pages, 19 figures. 9 September 1971.
12. Otto Mayr. "Feedback Mechanisms in the Historical Collections of the National Museum of History and Technology." x + 133 pages, 145 figures. 20 July 1971.
13. Peter L. Koffsky. "The Consul General's Shanghai Postal Agency, 1867-1907." v + 46 pages, 7 figures. 1 March 1972.
16. John T. Schlebecker and Gale E. Peterson. "Living Historical Farms Handbook." iii + 91 pages. 24 April 1972.
22. Robert B. Shaw. "History of the Comstock Patent Medicine Business and Dr. Morse's Indian Root Pills." 49 pages, 28 figures. 26 May 1972.

## UNITED STATES NATIONAL MUSEUM BULLETIN

(Final volume of series)

298. "Publications of the United States National Museum (1947-1970)." 77 pages. 7 September 1971.

## Public Education

- American Art Programs of Higher Education and Research at the National Collection of Fine Arts, Smithsonian Institution.* Announcement. 7 October 1971.
- Books and Records from the Smithsonian Institution Press.* Order form. 21 October 1971.
- Breskin, Adelyn D. *Lee Gatch, 1902-1968.* Catalog of the exhibition, 64 pages, 40 illustrations. 5 October 1971.
- Breskin, Adelyn D. *Two American Painters: Fritz Scholder and T.C. Cannon.* Foreword by Joshua C. Taylor, introduction by Robert A. Ewing. Catalog of the exhibition, 45 pages, illustrated. 16 March 1972. Paper.
- Breskin, Adelyn D. *William H. Johnson, 1901-1970.* Foreword by Joshua C. Taylor, catalog of the exhibition by Jan K. Muhler. 208 pages, 168 illustrations. 29 October 1971. Paper.
- Brown, Letitia W., and Elsie M. Lewis. *Washington From Banneker to Douglass, 1791-1870.* 40 pages, illustrated. 18 November 1971. Poster.
- Brown, Letitia W., and Elsie M. Lewis. *Washington in the New Era, 1870-1970.* 41 pages, illustrated. 6 March 1972. Paper. Poster.
- The Catalog of American Portraits.* Folder. 5 pages. 25 January 1972.
- Charles A. Lindbergh and The Spirit of St. Louis.* Foldout. 28 December 1971.
- Checklist of Books for the 1971 Meeting of the American Studies Association.* Order form. 21 October 1971.
- Edith Gregor Halpert Memorial Exhibition.* Introduction by Adelyn D. Breskin. Catalog of the exhibition. 4 pages. 4 April 1972.
- The Evolution of a Community.* Foreword by John R. Kinard, introduction by Larry Erskine Thomas. 27 pages, illustrated. 24 February 1972. Poster February 1972.



- Flint, Janet A. *Boris Anisfeldt: Twenty Years of Designs for the Theater*. Foreword by Joshua C. Taylor, Catalog. 35 pages, 12 illustrations. 8 September 1971. Paper.
- Flint, Janet A. *Drawings by William Glackens, 1870-1938*. Foreword by Joshua C. Taylor; introduction by Ira Glackens. 20 pages, 12 illustrations. 24 February 1972. Paper.
- Freeze-dry at the Smithsonian*. Foldout. 12 July 1971.
- The Glass of Frederick Carder. Announcement of the exhibition. 16 February 1972.
- Hoover, Cynthia A. *Music Machines—American Style*. Foreword by Daniel J. Boorstin; introductory notes by Erik Barnouw and Irving Kolodin. Catalog of the exhibition. 140 pages, 220 illustrations. 21 September 1971. Paper.
- If Elected . . . : Unsuccessful Candidates for the Presidency, 1796-1968*. Foreword by Marvin Sadik, introduction by Lillian B. Miller. 512 pages, illustrated. 3 May 1972. Paper. Folder 14 April 1972.
- XXXVI International Biennial Exhibition of Art/Venice. Catalog. 16 pages, illustrated. 5 June 1972. Paper.
- John Steuart Curry: *Themes and Variations*. Catalog of the exhibition, 4 pages. 12 November 1971.
- Learning Opportunities for Schools*. Pamphlet. 12 pages. 24 August 1971.
- The McDonnell FH-1 Phantom*. Foldout. July 1971.
- The National Collection of Fine Arts*. Museum guide Foldout. 22 October 1971.
- National Museum of History and Technology*. Museum guide foldout. 26 October 1971. Reprint 4 May 1972.
- National Parks and the American Landscape*. Foreword by Joshua C. Taylor, introductory remarks by Rogers C.B. Morton and William H. Truettner and Robin Bolton-Smith. 141 pages, 135 illustrations. 15 June 1972. Paper.
- National Portrait Gallery, Smithsonian Institution*. 24 pages, illustrated. Reprint 6 March 1972.
- NCFA Calendar*. January-June 1972.
- Organs in Early America*. Foldout. 20 September 1971.
- Portraits of the American Stage, 1771-1971*. Foreword by Marvin Sadik, introduction by Monroe H. Fabian. Catalog of the exhibition. 203 pages, 93 illustrations. 10 September 1971. Paper.
- Pueblo Pottery*. Poster. 16 February 1972.
- Saturday Conference: Interactions*. Poster. 4 March 1972.
- Saturday Conference: Science and Education*. Poster. 4 March 1972.
- Saturday Conference: Times and Places*. Poster. 4 March 1972.
- Scherer, Joanna Cohan. *Indian Images: Photographs of North American Indians, 1847-1928*. Catalog. 31 pages, 13 illustrations. First edition 30 June 1970. Second printing 21 December 1971. Paper.
- Science: Man's Greatest Adventure: An Exhibition Honoring Black Scientists and their Achievements*. Pamphlet. 12 pages, illustrated. 27 July 1971.
- Smithsonian Institution Bulletin for Schools*. Folders. 4 pages. 30 November 1971-May 1972.
- Smithsonian Institution Programs of Higher Education and Research Training in American History or American Material Culture*. Announcement. 8 October 1971.
- Smithsonian Institution Program of Higher Education and Research in Anthropology*. Announcement. 7 October 1971.
- Smithsonian Institution Program of Higher Education and Research Training in the Biological Sciences*. Announcement. 8 October 1971.



- Smithsonian Institution Program of Higher Education and Research Training in the History of Science and Technology.* Announcement. 7 October 1971.
- Smithsonian Institution Program of Higher Education and Research Training in Physical Sciences.* Announcement. 7 October 1971.
- Smithsonian Institution Research Reports*, Number 1. 6 pages, illustrated. 30 May 1972.
- Smithsonian Institution Seminar Series in Patheopathology.* 1972. Announcement. 7 October 1971.
- Smithsonian Institution, Washington, D.C.* Guide foldout. 12 November 1971. Reprint 5 May 1972.
- Stachiw, Jerry B. *Window in the Sea: Development of the Smithsonian's Johnson-Sea-Link Submarine.* 31 pages, 22 illustrations. 2 December 1971. \$1.25.
- The Story of a Legendary Copper Boulder.* Foldout. 29 October 1971. \$.10.
- The T-2 Airplane and The First Nonstop Coast-to-Coast Flight.* 7 pages. Information Leaflet 466. 8 June 1972.
- What Am I . . . ?* Children's foldout. 9 May 1972.
- Wind Instruments.* Foldout. 20 September 1971.
- Winslow Homer, 1836-1910.* Foreword by Lisa Taylor, introduction by Lloyd Goodrich, catalog of the exhibition by Elaine Evans Dee. 125 pages, 106 illustrations. 1 May 1972. Paper.
- Woodenworks.* Catalog of the exhibition. Foldout. 16 February 1972.

### Institutional Publications

- Annual Report of the American Historical Association for the Year 1970.* Volume 1: "Proceedings." xvi + 170 pages. 23 February 1972.
- 1970 Annual Report, National Zoological Park, Smithsonian Institution, 1 July 1969 through 30 June 1970.* 89 pages, 16 figures. 28 January 1972.
- Preliminary Guide to the Smithsonian Archives: 125th Anniversary of the Smithsonian Institution.* 72 pages. September 1971.
- Smithsonian International Exchange Service, 1970 Annual Report.* 9 pages. January 1972.
- Smithsonian International Exchange Service, 1971 Annual Report.* 9 pages. 5 May 1972.
- Smithsonian Year 1971: Annual Report of the Smithsonian Institution for the Year Ended 30 June 1971.* vi + 247 pages, illustrated. Publication 4767. 27 January 1972.

### ATOLL RESEARCH BULLETIN

149. D.R. Stoddart and J.D. Taylor, editors. "Geography and Ecology of Diego Garcia Atoll, Chagos Archipelago." 237 pages, 34 figures, 50 plates, 9 tables. 27 August 1971.
150. A. Binion Amerson, Jr. "The Natural History of French Frigate Shoals, Northwestern Hawaiian Islands." 383 pages, 74 figures, 149 tables. 20 December 1971.

## Appendix 6

### PUBLICATIONS OF THE SMITHSONIAN INSTITUTION STAFF IN FISCAL YEAR 1972

#### Office of the Assistant Secretary for Science

Challinor, David, and David B. Wingate. "The Struggle for Survival of the Bermuda Cedar." *Biological Conservation*, volume 3, number 3 (April 1971), pages 220-222.

#### National Museum of Natural History

##### DEPARTMENT OF ANTHROPOLOGY

Angel, J. Lawrence. *The People of Lerna: Analysis of a Prehistoric Aegean Population*. xii + 159 pages. American School of Classical Studies of Athens, Princeton, New Jersey, and Smithsonian Institution Press, Washington, D.C., 1971.

\_\_\_\_\_. "Disease and Culture in the Ancient East Mediterranean." Pages 503-508, in *Anthropological Congress dedicated to Alš Hrdlička, 30th August-5th September 1969, Praha and Humpolec*. Praha: Academia [Publishing House of the Czechoslovak Academy of Sciences], 1971.

\_\_\_\_\_. "Early Skeletons from Çatal Hüyük: Demography and Pathology." *Anatolian Studies*, volume 21 (1971), pages 77-98.

\_\_\_\_\_. "Biological Relations of Egyptian and East Mediterranean Populations during Predynastic and Dynastic Times." In Chiarelli, editor, *Symposium on Population Biology of the Ancient Egyptians. Journal of Human Evolution*, volume 1, number 3 (1972).

\_\_\_\_\_. "Genetic and Social Factors in a Cypriote Village." *Human Biology*, volume 44 (1972), pages 53-80.

Bass, William M., and Donald J. Ortner, "A Case of Forgery of Indian Artifacts Worked Human Bone Tools from Kansas." *Kansas Anthropological Association Newsletter*, volume 16 (1971) pages 1-4.

Collins, Henry B. "The L'Anse aux Meadows Archaeological Site in Northern Newfoundland." *National Geographic Society Research Reports, 1961-1962 Projects* (1970), pages 39-40. [Not previously reported.]

\_\_\_\_\_. "Prehistoric Relations between Japan and the American Arctic: Eskimo and Pre-Eskimo." *VIIth Congress of Anthropological and Ethnological Sciences, Tokyo and Kyoto 1968*, volume 3 (1970), pages 358-359. [Not previously reported.]

\_\_\_\_\_. "Composite Mask: Chinese and Eskimo." *Anthropologica*, new series, volume 13, numbers 1-2 (1971), pages 271-278.

\_\_\_\_\_. "Study of the Religious Beliefs of the Canadian Eskimo." *National Geographic Society Research Reports, 1965 Projects* (1971), pages 87-89.

\_\_\_\_\_. "Eskimo Archaeology." Pages 704-706 in *Encyclopaedia Britannica*, volume 8, Chicago, 1971.

- \_\_\_\_\_. "Peoples of the Arctic." Pages 345-346 in *Encyclopaedia Britannica*, volume 2. Chicago, 1971.
- \_\_\_\_\_. "Origin and Development of Eskimo Culture." *VII Congress International des Anthropologues et Ethnologues, Moscow 1964*, volume 10, pages 257-259. [Dated Moscow 1970; received May 1972. Not previously reported.]
- Crocker, William H. "The Canela (Brazil) Taboo System: A Preliminary Exploration of an Anxiety-reducing Device." *Verhandlungen des XXXVIII Internationalen Amerikanistenkongresses, Stuttgart-Munchen 1968*, Band 3 (1971), pages 323-331.
- \_\_\_\_\_. "Observations Concerning Certain Ramkokamekra-Canela (Brazil) Indian Restrictive Taboo Practice." *Verhandlungen des XXXVIII Internationalen Amerikanistenkongresses, Stuttgart-Munchen 1968*, Band 3 (1971), pages 337-339.
- Evans, Clifford, and Betty J. Meggers. "Introdução." In "Programa Nacional de Pesquisas Arqueologicas, Resultados Preliminares do Quarto Ano, 1968-69." *Museu Paraense Emilio Goeldi, Publicacoes Avulsas*, number 15 (1971), pages 7-9 Belem.
- Ewers, John C. "Bodily Proportions as Guides to Lineal Measurements Among the Blackfoot Indians." *American Anthropologist*, volume 72, number 3 (1970), pages 561-562. [Not previously reported.]
- \_\_\_\_\_. "Jean Louis Berlandier: A French Scientist Among the Wild Comanches of Texas in 1828. Pages 290-300, in John Francis Mc Dermott, editor, *Travelers on the Western Frontier*. Urbana: University of Illinois Press, 1970. [Not previously reported.]
- \_\_\_\_\_. "Contraceptive Charms Among the Plains Indian." *Plains Anthropologist*, volume 15, number 49 (1970), pages 216-218, 1 plate. [Not previously reported.]
- \_\_\_\_\_. "A Crow Chief's Tribute to the Unknown Soldier." *The American West*, volume 8 number 6 (1971), pages 30-35, 5 plates.
- \_\_\_\_\_. "Not Quite Red Men: The Plains Indian Illustrations of Felix O.C. Darley." *The American Art Journal*, volume 3, number 2 (Fall), pages 88-98, 16 plates.
- \_\_\_\_\_. "When Red and White Men Met." *The Western Historical Quarterly*, volume 2, number 2 (1971), pages 133-150.
- \_\_\_\_\_. "Winold Reiss: His Portraits and Proteges." *The Magazine of Western History*, volume 21, number 3 (1971), pages 44-55, 22 plates.
- \_\_\_\_\_. "Indians as Warriors." *The American Way*, volume 4, number 8 (1971), pages 20-27, 12 plates.
- \_\_\_\_\_. "The Influence of the Horse in Blackfoot Culture." Pages 252-270, in Deward E. Walker, editor, *The Emergent Native Americans: A Reader in Culture Contact*. Boston: Little Brown and Co., 1972.
- \_\_\_\_\_. "Folk Art in The Fur Trade of the Upper Missouri." *Prologue* (The National Archives), volume 4, number 2 (June 1972), pages 99-108, 7 plates.
- \_\_\_\_\_. "Blackfoot Camp Life." Pages 133-144, in Bruce A. Glasrud and Alan H. Smith, editors, *Promises to Keep A Portrayal of Nonwhites in the United States*. Chicago: Rand McNally and Co., 1972.
- Fitzhugh William. "Fife Brook Surveys and Excavations, Upper Deerfield River." *Bulletin of the Massachusetts Archaeological Society*, volume 33, numbers 1-2 (1971), pages 21-29.
- \_\_\_\_\_. "Environmental Archeology and Cultural Systems in Hamilton Inlet, Labrador: A Survey of the Central Labrador Coast from 3000 B.C. to the



- Present." *Smithsonian Contributions to Anthropology*, number 16 (1972), xix + 299 pages, 80 figures, 87 plates, 30 tables.
- Knez, Eugene I. "Ainu." Pages 308-309, in *Funk and Wagnalls New Encyclopedia*, volume 1. New York, 1971.
- Koritzer, Richard T. "Enameloma in a prehistoric Indian skull." *American Journal of Physical Anthropology*, volume 33, number 3 (1970), pages 439-441. [Not previously reported.]
- \_\_\_\_\_. "Arthritic changes of temporomandibular joint related to the dentition." *Georgetown Dental Journal*, volume 37, number 1 (1971), pages 17-21.
- Meggers, Betty J. "Contacts from Asia." Pages 239-259, in Geoffrey Ashe and others, *The Quest for America*. New York: Pall Mall Press, London and Praeger, 1971.
- \_\_\_\_\_. *Prehistoric America*. vii + 200 pages, 100 figures. Chicago: Aldine Atherton, 1972.
- Meggers, Betty J., and Clifford Evans. "Especulaciones sobre rutas tempranas de difusión de la cerámica entre sur y Mesoamerica." *Revista Dominicana de Arqueología y Antropología*, Año 1, volume 1, number 1, pages, 137-149, enero-junio de 1971.
- \_\_\_\_\_, contributing editors. "Archaeology: South America." Number 33, pages 67-102, in *Handbook of Latin American Studies*, Gainesville: University of Florida Press, 1971.
- Metcalf, George, and Harold Carlson. "An Atlatl Weight from North Dakota." *Plains Anthropologist*, volume 16, number 52 (May 1971), pages 121-122. [Not previously reported.]
- Phebus, George E. Jr. *Alaskan Eskimo Art in the 1890's as Sketched by Native Artists*. 168 pages. Washington, D.C.: Smithsonian Institution Press, 1972.
- \_\_\_\_\_. "Archeology: Western Hemisphere." *Americana Annual* (1972), pages 100-101. New York.
- Riesenberg, Saul H., editor. *A Residence of Eleven Years in New Holland and the Caroline Islands*, by James F. O'Connell. Pacific History Series number 4, 232 pages. Canberra: Australian National University Press. 1972.
- Riesenberg, Saul H., and Samuel H. Elbert. "The Poi of the Meeting." *The Journal of the Polynesian Society*, volume 80 (1971), pages 217-227.
- Stewart, T.D. "Use of the Hrdlička Skeletal Collection in a Museum Presentation of the Biology of Man." Pages 17-24 in *Anthropological Congress dedicated to Aleš Hrdlička, 30th August-5th September 1969, Praha, Humpolec*. Praha: Academia [Publishing House of the Czechoslovak Academy of Sciences], 1971.
- \_\_\_\_\_. "What the Bones Tell Today." *FBI Law Enforcement Bulletin*, volume 41, number 2 (1972), pages 16-20, 30-31.
- St. Hoyme, Lucile E., and Richard T. Koritzer. "Unusual Dental Pathology in an Illinois Indian ca. 500 A.D." *Dental Digest*, volume 76 (1970), pages 386-387. [Not previously reported.]
- Sturtevant, William C. "Traditional Crafts and Art of Northwest Coast Indians." Pages 18-21 in *1971 Festival of American Folklife July 1-5*, Washington, D.C.: Division of Performing Arts, The Smithsonian Institution, 1971.
- \_\_\_\_\_. "Notes on the Creek Hothouse." *Southern Indian Studies*, volume 20 (1971), pages 3-5. Chapel Hill, North Carolina.
- \_\_\_\_\_. "A Short History of the Strange Custom of Tattooing." Pages 1-10, in C.H. Fellowes, editor, *Tattoo Book*. Princeton: The Pyne Press, 1971.
- \_\_\_\_\_. "Creek into Seminole." Chapter 4, pages 92-128, in E.B. Leacock and N.O. Luire, editors, *North American Indians in Historical Perspective*. New York: Random House, 1971.

- \_\_\_\_\_. "Smithsonian Plans New Native American Handbook." *The Indian Historian*, volume 4, number 4 (1972), pages 5-8. San Francisco.
- \_\_\_\_\_. "American Indian Religions." *The American Way*, volume 5, number 2 (1972), pages 28-34. New York.
- \_\_\_\_\_. "Studies in Ethnoscience." Pages 129-167, in James P. Spradley, editor, *Culture and Cognition: Rules, Maps, and Plans*. San Francisco: Chandler Publishing Co., 1972. [Reprinted from *American Anthropologist*, volume 66, number 3, part 2 (1964), pages 99-131.]
- Trousdale, William B. "Iranian Culture Continuum in the Himalaya." Paper presented at the 28th International Congress of Orientalists, Canberra, 1971.
- Ubelaker, Douglas, H. "The Dentition." Appendix 1 in Bass, Evans, and Jantz, "An Analysis of the Leavenworth Site, 39C09, Carson County, South Dakota." *The University of Kansas, Publication Series in Anthropology*, number 2 (1971).
- \_\_\_\_\_. "The Human Dentition." Chapter 4, in William M. Bass, editor, *Human Osteology: A Laboratory and Field Manual of the Human Skeleton*. Columbia: Special Publications, Missouri Archaeological Society, 1971.

## DEPARTMENT OF BOTANY

- Ayensu, Edward S. *Anatomy of the Monocotyledons: Dioscoreales*. Oxford: Clarendon Press, 1972.
- \_\_\_\_\_. "Morphology and Anatomy of *Synsepalum dulcificum* (Sapotaceae)." *Botanical Journal of the Linnean Society*, volume 65, number 2 (1972), pages 179-187.
- \_\_\_\_\_. "The Need for Training in Technological Management in developing Countries—Ghana, A Case in Point." *Journal of the Washington Academy of Sciences*, volume 62, number 1 (1972), pages 17-22.
- Barroso, G.M., and R. M. King. "New Taxa of Compositae (Eupatorieae) from Brazil." *Brittonia*, volume 23 (1971), pages 118-121.
- Conger, Paul S. "Philip Weiss Wolle." *Journal of Phycology*, volume 7, number 1 (1971), pages 50-53.
- Cuatrecasas, J. "Observaciones sobre Compositae." *Anales Escuela Nacional Ciencias Biologicas* (Mexico), volume 18 (1970), pages 9-15.
- \_\_\_\_\_. "Miscellaneous Notes on Neotropical Flora, II." *Phytologia*, volume 23 (1972), pages 350-365.
- Cuatrecasas, J., and Lyman B. Smith. "Cunoniaceae." In *Flora Ilustrada Catarinense* (1971), pages 1-22.
- Dahl, Arthur Lyon. "Development, Form and Environment in the Brown Alga *Zonaria farlowii* (Dictyotales)." *Botanica Marina*, volume 14 (1971), pages 76-112.
- Dahl, Arthur Lyon, and M. Neushul. "Ultrastructural Studies of Brown Algal Nuclei." *American Journal of Botany*, volume 59 (1972), pages 401-410.
- \_\_\_\_\_. "Zonation in the Apical Cell of *Zonaria*." *American Journal of Botany*, volume 59 (1972), pages 393-400.
- Eyde, R.H. "Notes on Geological Histories on Flowering Plants." *Brittonia*, volume 24, number 1 (1972), pages 111-116.
- Fosberg, F.R. "The Axis Deer Problem." Volume 2, pages 201-202, in Mueller-Dombois, *Island Ecosystems Stability and Evolution*, USIBP Technical Report, Honolulu, 1972.
- \_\_\_\_\_. "Endangered Island Plants." *Bulletin of the Pacific Tropical Botanical Garden*, volume 1, number 3 (1971), pages 1-7.
- \_\_\_\_\_. "The Fern Vegetation of Aldabra Atoll." *American Fern Journal*, volume 61 (1971), pages 97-101.



- \_\_\_\_\_. "Island Faunas and Floras." *McGraw-Hill Encyclopedia of Science and Technology*, 3rd edition (1970), pages 309-311.
- \_\_\_\_\_. "Man's Effects on Island Ecosystems." Pages 869-880, in M.T. Farvar, and J.P. Milton, editors, *The Careless Technology*. Garden City, New York: Natural History Press, 1972.
- \_\_\_\_\_. "Mangroves v. Tidal Waves." *Biological Conservation*, volume 4 (1971), pages 38-39.
- \_\_\_\_\_. "*Psidium* L. (Myrtaceae) in Ceylon." *Ceylon Journal of Science, Biological Sciences*, volume 9 (1971), pages 58-60.
- \_\_\_\_\_. "Synopsis of Views of F.R. Fosberg Relative to the Harvesting of Koa and Hapuu on the Big Island." Volume 2, page 205, in Mueller-Dombois, *Island Ecosystems Stability and Evolution*. USIBP Technical Report, Honolulu, 1972.
- Fosberg, F.R., and A.A. Bullock. "List of Diego Garcia Vascular Plants." *Atoll Research Bulletin*, volume 149 (1971), pages 143-160.
- Fosberg, F.R., and M.-H. Sachet. "Three Indo-Pacific *Thelypteris* Species Reinterpreted and a New African Species Described." *Smithsonian Contributions to Botany*, volume 8 (1972), pages 1-10.
- \_\_\_\_\_. "*Thespesia populnea* (L.) Solander ex Correa and *Thespesia populneoides* (Rosburgh) Kostelecky (Malvaceae)." *Smithsonian Contributions to Botany*, volume 7 (1972), pages 1-13.
- Hale, Mason E. "Five New *Parmeliae* from Tropical America." *Phytologia*, volume 22 (1971), pages 30-35.
- \_\_\_\_\_. "Four New Species of *Parmelia* (Lichenes) from India and the Philippines." *Bryologist*, volume 75 (1972), pages 97-100.
- \_\_\_\_\_. "Morden-Smithsonian Expedition to Dominica: The Lichens (Parmeliaceae)." *Smithsonian Contributions to Botany*, number 4 (1971), pages 1-25.
- \_\_\_\_\_. "New *Parmeliae* (Lichenes) from Africa." *Phytologia*, volume 22 (1971), pages 94-96.
- \_\_\_\_\_. "New Species of *Parmelia* sect. *Hypotrachyna* (Lichenes)." *Phytologia*, volume 22 (1971), pages 433-438.
- \_\_\_\_\_. "*Parmelia affluens*, a New Species of Lichen in Subgenus *Amphigymnia* with a Yellow Medulla." *Phytologia*, volume 22 (1971), pages 141-142.
- \_\_\_\_\_. "*Parmelia jamesii*, an Unusual Species in Section *Imbricaria* (Lichenes) from Australia and New Zealand." *Phytologia*, volume 23 (1972), page 179.
- \_\_\_\_\_. "*Parmelia permaculata*, a New Lichen from Alabama and Mexico." *Phytologia*, volume 21 (1971), page 425.
- \_\_\_\_\_. "*Parmelia pustulifera*, a New Lichen from Southeastern United States." *Brittonia*, volume 24 (1972), pages 22-27.
- \_\_\_\_\_. "*Parmelia squarrosa*, a New Species in Section *Parmelia*." *Phytologia*, volume 22 (1971), page 29.
- \_\_\_\_\_. "Studies on *Parmelia* Subgenus *Xanthoparmelia* (Lichenes) in South Africa." *Botaniska Notiser*, volume 124 (1971), pages 343-354.
- \_\_\_\_\_. "Two New Species of *Parmelia* (Lichenes) from North America." *Phytologia*, volume 22 (1971), pages 92-93.
- \_\_\_\_\_. "Typification of *Parmelia dolosa* des Abayyes (Lichenes)." *Phytologia*, volume 22 (1971), pages 137-138.
- Hale, Mason E., and M. Wirth. "Notes on *Parmelia* Subgenus *Everniiformes* With Descriptions of Six New Species." *Phytologia*, volume 22 (1971), pages 36-40.



- King, R.M., and H. Robinson. "Studies in the Eupatorieae (Asteraceae). XXXVI. A New Genus *Neobartlettia*." *Phytologia*, volume 21 (1971), pages 294-297.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). XXXVII. The Genus, *Hebeclinium*." *Phytologia*, volume 21 (1971), pages 298-301.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). XXXVIII. A New Genus, *Peteravenia*." *Phytologia*, volume 21 (1971), pages 394-395.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). XXXIX. A New Genus, *Guayania*." *Phytologia*, volume 21 (1971), pages 302-303.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). XI. The Genus, *Urolepis*." *Phytologia*, volume 21 (1971), pages 304-305.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). XLI. The Genus *Eupatoriastrum*." *Phytologia*, volume 21 (1971), pages 306-307.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). XLII. A New Genus, *Eupatorina*." *Phytologia*, volume 21 (1971), pages 396-397.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). XLIII. A New Genus, *Antillia*." *Phytologia*, volume 21 (1971), pages 398-399.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). XLIV. The Genus, *Radlkoferotoma*." *Phytologia*, volume 21 (1971), pages 400-401.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). XLV. A New Genus, *Fleischmanniopsis*." *Phytologia*, volume 21 (1971), pages 402-404.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). XLVI. A New Genus, *Standleyanthus*." *Phytologia*, volume 22 (1971), pages 41-42.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). XLVII. A New Genus, *Steyermarkina*." *Phytologia*, volume 22 (1971), pages 43-55.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). XLVIII. The Genus, *Critonia*." *Phytologia*, volume 22 (1971), pages 46-51.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). XLIX. A New Genus, *Critoniadelphus*." *Phytologia*, volume 22 (1971), pages 52-53.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). L. A New Genus, *Urbananthus*." *Phytologia*, volume 22 (1971), pages 54-55.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LI. The Disynaphioid Complex." *Phytologia*, volume 22 (1971), pages 109-110.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LII. A New Genus, *Acanthostyles*." *Phytologia*, volume 22 (1971), pages 111-112.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LIII. A New Genus, *Raulinoreitzia*." *Phytologia*, volume 22 (1971), pages 113-114.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LIV. The Genus, *Symphyopappus*." *Phytologia*, volume 22 (1971), pages 115-117.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LV. The Genus, *Dimorpholepis*." *Phytologia*, volume 22 (1971), pages 118-120.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LVI. A New Genus, *Campovassouria*." *Phytologia*, volume 22 (1971), pages 121-122.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LVII. The Genus, *Disynaphia*." *Phytologia*, volume 22 (1971), pages 123-125.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LVIII. A New Genus, *Tamaulipa*." *Phytologia*, volume 22 (1971), pages 153-155.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LIX. A New Genus, *Steviopsis*." *Phytologia*, volume 22 (1971), pages 156-157.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LX. A New Genus, *Dyscritogyne*." *Phytologia*, volume 22 (1971), pages 158-159.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae), LXI. Additions to the *Hebeclinium* complex with *Bartlettina*, A New Generic Name." *Phytologia*, volume 22 (1971), pages 160-162.

- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LXII. A New Genus, *Neohintonia*." *Phytologia*, volume 22 (1971), pages 143-144.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LXIII. A New Genus, *Kyrsteniopsis*." *Phytologia*, volume 22 (1971), pages 145-146.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LXIV. The Genus, *Koanophyllon*." *Phytologia*, volume 22 (1971), pages 147-152.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LXV. A New Genus, *Neocabreria*." *Phytologia*, volume 23 (1972), pages 151-152.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LXVI. The Genus, *Pachythamnus*." *Phytologia*, volume 23 (1972), pages 153-154.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LXVII. *Grazielia* nom. nov. for *Dimorpholepis*." *Phytologia*, volume 23 (1972), pages 305-306.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LXVIII. A New Genus, *Conocliniopsis*." *Phytologia*, volume 23 (1972), pages 307-309.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LXIX. A New Genus, *Gyptidium*." *Phytologia*, volume 23 (1972), pages 310-311.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LXX. A New Genus, *Bahianthus*." *Phytologia*, volume 23 (1972), pages 312-313.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LXXI. A New Genus, *Hatschbachiella*." *Phytologia*, volume 23 (1972), pages 393-394.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LXXII. Notes on the Genus *Koanophyllon*." *Phytologia*, volume 23 (1972), pages 395-396.
- \_\_\_\_\_. "Studies in the Eupatorieae (Asteraceae). LXXIII. The Genus, *Ophryosporus*." *Phytologia*, volume 23 (1972), pages 397-400.
- Lellinger, David B. "The American Species of *Plagiogyria* Sect. *Carinatae*." *American Fern Journal*, volume 61, number 3 (1971), pages 110-118.
- \_\_\_\_\_. "Dichlorvos and Lindane as Herbarium Insecticides." *Taxon*, volume 21, number 2 (1971), pages 91-95.
- Lellinger, David B., and E.R. de la Sota. "Collecting Ferns in the Chocó, Colombia." *American Fern Journal*, volume 62, number 1 (1972), pages 1-8.
- Morton, Conrad V. "*Asplenium kamtchatkanum* Gilbert, A Dubious Eastern Asiatic Fern." *American Fern Journal*, volume 61, number 3 (1971), pages 140-141.
- \_\_\_\_\_. "The Fern Collections in Some European Herbaria, VII." *American Fern Journal*, volume 61, number 2 (1971), pages 59-75.
- \_\_\_\_\_. "The Genus *Grammatosorus*." *American Fern Journal*, volume 61, number 4 (1971), pages 145-148.
- \_\_\_\_\_. "A Reduction of *Trichantha* to *Columnnea* (Gesneriaceae)." *Phytologia*, volume 22, number 3 (1971), pages 223-224.
- \_\_\_\_\_. "Supplementary Notes on *Grammitis* in Ecuador." *Phytologia*, volume 22, number 2 (1971), pages 71-82.
- \_\_\_\_\_. "A Wrongly Localized Species of *Pyrrosia*." *American Fern Journal*, volume 61, number 2 (1971), page 94.
- Morton, Conrad V., and David B. Lellinger. "Notes on the Ferns of Dominica and St. Vincent, II." *American Fern Journal*, volume 61, number 4 (1971), pages 161-165.
- Morton, Conrad V., and M. Raymond. "A *Columnnea* Species and an *Episcia* Species [Gesneriaceae] New to Science and Cultivation." *Baileya*, volume 18, number 1 (1971), pages 6-12.
- Morton, Conrad V., and Bernice G. Schubert. "Studies in *Dioscorea*, II: An Unusual New Species from Mexico." *Proceedings of the Biological Society of Washington*, volume 84, number 52 (1952), pages 445-448.
- Parker, K.F. *Weeds of Arizona*. Tucson: University of Arizona Press, June 1972.



- Powell, A.M., and J. Cuatrecasas. "Chromosome Numbers in Compositae: Colombian and Venezuelan species." *Annals of Missouri Botanical Garden*, volume 57 (1970), pages 374-379.
- Read, R.W. "Hohenbergia." Pages 43-45, in C. D. Adams, *Flowering Plants of Jamaica*. Mona, Jamaica: University of the West Indies, 1972.
- \_\_\_\_\_. "Palmae." Pages 73-76, in C.D. Adams, *Flowering Plants of Jamaica*. Mona, Jamaica: University of the West Indies, 1972.
- \_\_\_\_\_. "Vriesea." Pages 52-53, in C.D. Adams, *Flowering Plants of Jamaica*. Mona, Jamaica: University of the West Indies, 1972.
- Read, R.W., and Leo J. Hickey. "A Revised Classification of Fossil Palm and Palmlike Leaves." *Taxon*, volume 21, number 1 (1972), pages 129-137.
- Robinson, H. "Four New Species of Mosses from Peru." *Phytologia*, volume 21 (1971), pages 389-393.
- \_\_\_\_\_. "Observations on the Origin of the Specialized Leaves of *Fissidens* and *Schistostega*." *Revue Bryologique et Lichenologique*, volume 37 (1970-1971), pages 941-947.
- \_\_\_\_\_. "A Revised Classification for the Orders and Families of Mosses." *Phytologia*, volume 21 (1971), pages 289-293.
- \_\_\_\_\_. "*Cheilothela vaginata* and *Syrrhopodon Steyermarkii*, Two New Moss Species from Venezuela." *Phytologia*, volume 23 (1972), pages 390-391.
- \_\_\_\_\_. "Scanning Electron Microscope Studies on Moss Leaves and Peristomes." *The Bryologist*, volume 74 (1971), pages 473-483.
- \_\_\_\_\_. "The Status of the Genus *Cryphidium* (Bryophyta: Musci)." *Phytologia*, volume 23 (1972), pages 149-150.
- Robinson, H., L.B. Holm-Nielsen, and S. Jeppesen. "Mosses of Ecuador." *Lindbergia*, volume 1 (1971), pages 66-74.
- Schultes, E.R., and J. Cuatrecasas. "New Species of Ichthyotoxic Plant from the Amazon." *Botanical Museum Leaflet of Harvard University*, volume 23, number 3 (1972), pages 129-136.
- Rudd, Velva E. "A New Variety of *Poiretia latifolia* and a Brief Resume of the Genus *Poiretia* Vent. (Leguminosae)." *Phytologia*, volume 23 (1972), pages 141-148.
- \_\_\_\_\_. "New Combinations in *Machaerium* (Leguminosae)." *Phytologia*, volume 22 (1971), page 56.
- \_\_\_\_\_. "Reduction of *Balisaea* to *Aeschynomene* (Leguminosae)." *Phytologia*, volume 23 (1972), pages 321-322.
- Sachet, M.-H., and F.R. Fosberg. *Island Bibliographies Supplement*. Washington, D.C.: National Academy of Sciences, 1971.
- Shetler, Stanwyn G. "Walcott, Mary Morris Vaux." In Edward T. James, Janet Wilson James, and Paul S. Boyer, editors, *Notable American Women 1607-1950. A Biographical Dictionary*, volume P-Z, pages 525-526. Cambridge, Massachusetts: The Belknap Press of Harvard University Press, November 1971.
- Smith, L.B. "Notes on Bromeliaceae, XXXIII." *Phytologia*, volume 22, number 2 (1971), pages 85-87.
- \_\_\_\_\_. "Notes on Bromeliaceae, XXXIII." *Phytologia*, volume 22, number 2 (1971), pages 85-87.
- \_\_\_\_\_. "Herbarium Notes, III." *Phytologia*, volume 22, number 2 (1971), pages 87-91.
- \_\_\_\_\_. "Bromeliaceae." *Flora de Venezuela*, volume 12 (1971), pages 1-361.
- Smith, L.B., and Harold E. Robinson. "Hippocrateáceas." *Flora Ilustrada Catarinense*, part 1, fascicle HIPO (1971), pages 1-33.



- Smith, L.B., and Ruth C. Smith. "Begoniáceas." *Flora Ilustrada Catarinense*, part 1, fascicle BEGO (1971), pages 1-128.
- Soderstrom, T.R., and C.E. Calderón. "Insect Pollination in Tropical Rain Forest Grasses." *Biotropica*, volume 3, number 1 (1971), pages 1-16.
- Soderstrom, T.R., and F.A. McClure. "The Agristological Term Anthecium." *Taxon*, volume 21, number 1 (1972), pages 153-154.
- Wurdack, J.J. "Certamen Melastomataceis XVIII." *Phytologia*, volume 21, number 6 (1971), pages 353-368.
- \_\_\_\_\_. "Certamen Melastomataceis XVII." *Phytologia*, volume 22, number 5 (1972), pages 399-418.
- \_\_\_\_\_. "Geographic Errors in Bonpland Collections of Melastomataceae." *Taxon*, volume 20, number 4 (1971), pages 591-593.
- \_\_\_\_\_. "The Melastomataceae Collections of A.R. Ferreira." *Taxon*, volume 20, number 4 (1971), pages 595-596.
- \_\_\_\_\_. "Notes on Some Cultivated Species of *Miconia* [Melastomataceae]." *Baileya*, volume 18, number 1 (1971), pages 17-19.
- Wurdack, J.J., and Lyman B. Smith. "Poligalaceas." *Flora Ilustrada Catarinense*, part 1, fascicle POLIGA (1971), pages 1-70.

#### DEPARTMENT OF ENTOMOLOGY

- Blake, Doris H. "Some New Chrysomelid Beetles from Cuba." *Casopes Moravského Museu (Czechoslovakia)*, volume 55 (1971), pages 115-126.
- \_\_\_\_\_. "Fifteen New West Indian Chrysomelid Beetles." *Proceedings of the Entomological Society of Washington*, volume 73, number 3 (1971), pages 269-282.
- Bush, Mignon M. "Some Notes on Cave Insects." *District of Columbia Speleograph*, volume 38, number 3 (1972), pages 14-15.
- Cartwright, Oscar L., and Robert D. Gordon. "Coleoptera; Scarabaeidae." *Insects of Micronesia*, volume 17, number 4 (1971), pages 257-296.
- Crabill, Ralph E. "A New Neotropical *Schendylurus*, with Key to its South American Congeners." *Proceedings of the Biological Society of Washington*, volume 74, number 1 (1972), pages 18-21.
- Davis, D.R. "Ferguson Collection to Smithsonian Institution." *Journal of the Lepidoptera Society*, volume 25, number 3 (1971), page 168.
- \_\_\_\_\_. "*Tetrapalpus trinidadensis*, a New Genus and Species of Cave Moth from Trinidad (Lepidoptera: Tineidae)." *Proceedings of the Entomological Society of Washington*, volume 74, number 1 (1972), pages 49-59.
- \_\_\_\_\_. "*Careospina quercivora*, a New Genus and Species of Moth Infesting Live Oaks in California (Lepidoptera: Incurvariidae)." *Proceedings of the Entomological Society of Washington*, volume 74, number 1 (1972), pages 121-128.
- DeLong, Dwight M., and Mignon Marie Bush. "Studies of the Gyponinae: New Species of *Ponanella* and *Acuponana*." *Ohio Journal of Science*, volume 71 (1971), pages 376-378.
- Duckworth, W. Donald. "Neotropical Microlepidoptera XX: Revision of the Genus *Setiostoma* (Lepidoptera: Stenomidae)." *Smithsonian Contributions to Zoology*, number 106 (1971), pages 1-45.
- Emerson, K.C. "Notes on Mallophaga from Owls in Thailand." Pages 13-16, in McClure, *Migratory Animal Pathological Survey, Annual Progress Report, 1970* (1971).

- \_\_\_\_\_. "Records of a Collection of Mallophaga and Anoplura from Nicaraguan Mammals." *Journal of the Kansas Entomological Society*, volume 44 (1971), pages 332-334.
- \_\_\_\_\_. "New Records of Anoplura from Mexico." *Journal of the Kansas Entomological Society*, volume 44 (1971), pages 374-377.
- Emerson, K.C., and Roger D. Price. "A New Species of *Pelmatocrandra* from a Diving Petrel (Mallophaga: Philopteridae)." *Proceedings of the Entomological Society of Washington*, volume 73 (1971), pages 211-212.
- \_\_\_\_\_. "Three New Species of Mallophaga from African Mammals (Trichodectidae)." *Proceedings of the Entomological Society of Washington*, volume 73 (1971), pages 372-376.
- Erwin, Terry L. "A Teratomorphic Carabid Beetle with Notes on Polymorphic Asymmetry of the Gular Region in the Same Population (Coleoptera: Carabidae)." *Pan-Pacific Entomologist*, volume 47, number 4 (1971), page 303.
- \_\_\_\_\_. "Notes and Corrections to a Reclassification of Bombardier Beetles (Carabidae: Brachinidae)." *Quaestiones entomologicae*, volume 1 (1971), page 281.
- \_\_\_\_\_. "Fossil Tachyine Beetles from Mexican and Baltic Amber with Notes on a New Synonymy of an Extant Group (Col., Carabidae)." *Entomologica Scandinavia*, volume 2, number 3 (1971), pages 233-236.
- \_\_\_\_\_. "Two New Genera of Bembidiine Carabid Beetles from Australia and South America with Notes on their Phylogenetic and Zoogeographic Significance (Coleoptera)." *Breviora*, number 383 (1972), pages 1-19.
- \_\_\_\_\_. "Carabid Beetles, Mountain Tops, and Trees." Lecture. Washington Entomological Society, Washington, D.C., 3 February 1972.
- \_\_\_\_\_. "Zoogeography and Carabid Ground Beetles." Lecture. Entomological Seminar. University of Maryland, College Park, Maryland, 29 March 1972.
- Erwin, Terry L., and LaVerne J. Erwin. *A Guide to the Ground-beetle Collection in the Museum National d'Histoire Naturelle, Paris (Coleoptera: Carabidae)*. 22 pages, 1971. Multilithed.
- Field, William D. "Butterflies of the Genus *Vanessa* and of the Resurrected Genera *Bassaris* and *Cynthia* (Lepidoptera: Nymphalidae)." *Smithsonian Contributions to Zoology*, number 84 (1971), pages 1-105, 160 figures.
- \_\_\_\_\_. "List of the Butterflies of Kansas, Including Native and Visitant Species." *The Mid-Continent Lepidoptera Series*, number 40 (1970), pages 1-16.
- Flint, Oliver S., Jr. "Life-history Studies on Chilean Caddisflies (Trichoptera)." *Year Book of the American Philosophical Society 1970* (1971), pages 312-313.
- \_\_\_\_\_. "Studies of Neotropical Caddisflies, XII: Rhyacophilidae, Glossosomatidae, Philopotamidae, and Psychomyiidae from the Amazon Basin (Trichoptera)." *Amazoniana*, volume 3 (1971), pages 1-67.
- \_\_\_\_\_. "R/V Hero Cruise 71-2 to Isla de Los Estados." *Antarctic Journal of the United States*, volume 6 (1971), pages 263-265.
- \_\_\_\_\_. "Three New Caddisflies from the Southeastern United States." *Journal of the Georgia Entomological Society*, volume 7 (1972), pages 79-82.
- \_\_\_\_\_. "Studies of Neotropical Caddisflies, XIII: The Genus *Ochrotrichia* from Mexico and Central America (Trichoptera: Hydroptilidae)." *Smithsonian Contributions to Zoology*, number 118 (1972), pages 1-28, 78 figures.
- Froeschner, Richard C. "*Nabis propinquus* Reuter Ranges Southward into Maryland (Hemiptera: Nabidae)." *Proceedings of the Entomological Society of Washington*, volume 73 (1971), page 468.
- \_\_\_\_\_. "New Records of Lace Bugs from Nevada (Hemiptera: Tingidae)." *Great Basin Naturalist*, volume 31 (1971), page 160.



- \_\_\_\_\_. "A New Species of Gargaphia Lace Bugs from Beans in Colombia (Hemiptera: Tingidae)." *Proceedings of the Entomological Society of Washington*, volume 74 (1972), pages 59-60.
- Harrison, B.A., P. Boonyakanist, and K. Mongkolpanya. "Biological Observations on *Aedes seatoi* Huang in Thailand with Notes on Rural *Aedes aegypti* (L.) Populations." *Journal of Medical Entomology*, volume 9, number 1 (15 March 1972), pages 1-6.
- Hurd, Paul D., Jr., and E. Gorton Linsley. "Parasitic Bees of the Genus *Holcopasites* Ashmead (Hymenoptera: Apoidea)." *Smithsonian Contributions to Zoology*, number 114 (10 March 1972), 41 pages, 16 figures, 1 table.
- \_\_\_\_\_. "Insects, their Dangers and Values to Mankind in Africa and the United States." *Voice of America*, 10 August 1971.
- \_\_\_\_\_. "Origin of Angiosperms from the Viewpoint of Bees." Lecture. Department of Botany, Smithsonian Institution, Washington, D.C., 13 December 1971.
- \_\_\_\_\_. "Insect Societies." *Radio Smithsonian*, 15 October 1971.
- \_\_\_\_\_. "Insect Zoo" NBC-TV, Channel 4, 20 July 1971, Tuesday, 7:00 p.m. and 11:00 p.m.
- Kim, Ke Ching, and K.C. Emerson. "Sucking Lice (Anoplura) from Iranian Mammals." *Journal of Medical Entomology*, volume 8 (1971), pages 7-16.
- Knight, K.L., and J.L. Laffoon. "A Mosquito Glossary. VIII: The Larval Chaetotaxy." *Mosquito Systematic Newsletter*, volume 3, number 4 (December, 1971), pages 160-194.
- Knutson, L.V., and Oliver S. Flint, Jr. "Pupae of Empididae in Pupal Cocoons of Rhyacophilidae and Glossosomatidae (Diptera: Trichoptera)." *Proceedings of the Entomological Society of Washington*, volume 73 (1971), pages 314-320.
- Krombein, Karl V. "A Monograph of the Mutillidae of New Guinea, Bismarck Archipelago and Solomon Island, Part I: Mutillinae." *Entomological Essays to Commemorate the Retirement of Prof. K. Yasumatsu*, pages 25-60, 24 figures, 1972.
- \_\_\_\_\_. "A New Wasp from Trinidad, Predaceous on Curculionidae and Bruchidae." *Proceedings of the Biological Society of Washington*, volume 84 (1972), pages 435-437, 1 figure.
- \_\_\_\_\_. "Smithsonian Entomological Fieldwork in Kenya and South Africa." Lectures. To Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka, 14 February 1972. To Faculty and Graduate Students of Zoology Department, University of Ceylon, Perideniya, 5 March 1972. To Natural History Section, Ceylon Association for the Advancement of Science, Colombo, Ceylon, 13 March 1972.
- Lakshminarayana, K.V., and K.C. Emerson. "Mallophaga Indica-VI. Notes on Goniocotes (Mallophaga: Philopteridae) Found on *Pavo cristatus*, with Description of a New Species." *Oriental Insects*, volume 5 (1971), pages 95-102.
- Mattingly, Peter F. "Illustrated Keys to the Genera of Mosquitoes. Contributions to the Mosquito Fauna of Southeast Asia. XII." *Contributions of the American Entomological Institute*, volume 7 (August, 1971), number 4, pages 1-89.
- Michelbacher, A.E., Paul D. Hurd, Jr., and E. Gorton Linsley. "Experimental Introduction of Squash Bees (*Peponapis*) to Improve Yield of Squashes, Gourds and Pumpkins." *Bee World*, volume 52, number 4 (1971), pages 156-166, 4 figures, 2 tables.
- Muesebeck, C.F.W. "On the Identity of *Agonophorus* Dahlbom (Proctotrupoidea, Diapriidae)." *Proceedings of the Entomological Society of Washington*, volume 74 (1972), page 131.



- Nadchatram, M., and R. Traub. "Chiggers of the Genus *Helenicula* of the Old World Including Descriptions of 9 New Species (Acarina: Prostigmata, Trombiculidae)." *Journal of Medical Entomology*, volume 8 (1971), pages 562-597.
- Price, Roger D., and K.C. Emerson. "A Revision of the Genus *Geomydoecus* (Mallophaga: Trichodectidae) of the New World Pocket Gophers (Rodentia: Geomyidae)." *Journal of Medical Entomology*, volume 8 (1971), pages 228-257.
- Rothchild, N., and R. Traub. "A Revised Glossary of Terms Used in the Taxonomy and Morphology of Fleas." Pages 8-85, in G.H.E. Hopkins and M. Rothschild, *An Illustrated Catalogue of the Rothschild Collection of Fleas (Siphonaptera) in the British Museum (Natural History)*, volume 5 (1971), viii + 530 pages.
- Spangler, Paul J. "A New Genus and New Species of Water Beetle from Bolivia with a Key to the Genera of the Western Hemisphere Colymbetini (Coleoptera: Dytiscidae)." *Proceedings of the Biological Society of Washington*, volume 84, number 49 (1972), pages 427-434, 7 figures.
- \_\_\_\_\_. "A New Genus and Two New Species of Madiculous Water Beetles from Venezuela (Coleoptera: Hydrophilidae)." *Proceedings of the Biological Society of Washington*, volume 85, number 10 (1972), pages 139-146.

## DEPARTMENT OF INVERTEBRATE ZOOLOGY

- Barnard, J. Laurens. "Keys to the Hawaiian Marine Gammaridea, 0-30 Meters." *Smithsonian Contributions to Zoology*, number 58 (1971), pages 1-135, 68 figures.
- \_\_\_\_\_. "Gammaridean Amphipods of Australia, Part I." *Smithsonian Contributions to Zoology*, number 103 (1971), pages 1-333. 194 figures, 1 table.
- Bowman, Thomas E. "*Palaega lamnae*, New Species (Crustacea: Isopoda) from the Upper Cretaceous of Texas." *Journal of Paleontology*, volume 45, number 3 (1971), pages 540-541.
- \_\_\_\_\_. "*Tortanus scaphus* and *Tortanus lophus*, New Pacific Planktonic Copepods, with Notes on *Tortanus murrayi* (Calanoida, Tortanidae)." *Pacific Science*, volume 25, number 4 (1971), pages 521-528.
- \_\_\_\_\_. "*Cirolana narica* n. sp., a New Zealand Isopod (Crustacea) Found in the Nasal Tract of the Dolphin *Cephalorhynchus hectori*." *Beaufortia*, volume 19, number 252 (1971), pages 107-112.
- \_\_\_\_\_. "The Case of the Nonubiquitous Telson and the Fraudulent Furca." *Crustaceana*, volume 21, part 2 (1971), pages 165-175.
- Carter, Marjorie Estelle, and Janet M. Bradford. "Postembryonic Development of Three Species of Freshwater Harpacticoid Copepoda." *Smithsonian Contributions to Zoology*, number 119 (1972), pages 1-26, 14 figures, 1 table.
- Chace, Fenner A., Jr. "The Shrimps of the Smithsonian-Bredin Caribbean Expeditions with a Summary of the West Indian Shallow-water Species (Crustacea: Decapoda: Natantia)." *Smithsonian Contributions to Zoology*, number 98 (1972), pages 1-179, 61 figures.
- Cressey, Roger F. "Two New Argulids (Crustacea: Branchiura) from the Eastern United States." *Proceedings of the Biological Society of Washington*, volume 84, number 31 (1971), pages 253-258.
- \_\_\_\_\_. "Revision of the Genus *Alebion* (Copepoda: Caligoida)." *Smithsonian Contributions to Zoology*, number 123 (1972), pages 1-29.
- Downey, Maureen E. "*Ampheraster alaminos*, A New Species of the Family Asteroiidae (Echinodermata: Asteroidea) from the Gulf of Mexico." *Proceedings of the Biological Society of Washington*, volume 84, number 6 (1971), pages 51-54.

- \_\_\_\_\_. "A New Species of the Genus *Solaster* (Echinodermata: Asteroidea) from Martinique." *Proceedings of the Biological Society of Washington*, volume 84, number 4 (1971), pages 39-42.
- \_\_\_\_\_. "Two New Species of the Genus *Tamaria* (Echinodermata: Asteroidea) from the Tropical Western Atlantic." *Proceedings of the Biological Society of Washington*, volume 84, number 5 (1971), pages 43-50.
- Heron, Gayle A., and Thomas E. Bowman. "Postnaupliar Developmental Stages of the Copepod Crustaceans *Clausocalanus laticeps*, *C. brevipes*, and *Ctenocalanus citer* (Calanoida: Pseudocalanidae)." *Antarctic Research Series*, volume 17 (1971), pages 141-165.
- Hobbs, Horton H., Jr. "The Entocytherid Ostracods of Mexico and Cuba." *Smithsonian Contributions to Zoology*, number 81 (1971), pages 1-55, 31 figures.
- \_\_\_\_\_. "New Crayfishes of the Genus *Procambarus* from Alabama and Texas (Decapoda, Astacidae)." *Proceedings of the Biological Society of Washington*, volume 84, number 11 (1971), pages 81-94, 2 figures.
- \_\_\_\_\_. "A New Troglobitic Crayfish from Florida." *Quarterly Journal of the Florida Academy of Sciences*, volume 34, number 2 (1971), pages 114-124, 19 figures.
- \_\_\_\_\_. "The Subgenera of the Crayfish Genus *Procambarus* (Decapoda: Astacidae)." *Smithsonian Contributions to Zoology*, number 117 (1972), pages 1-22, 20 figures.
- Hobbs, Horton H., Jr., and Thomas C. Barr, Jr. "Origins and Affinities of the Troglobitic Crayfish of North America (Decapoda: Astacidae), II: Genus *Orconectes*." *Smithsonian Contributions to Zoology*, number 105 (1971), pages 1-84, 16 figures.
- Hobbs, Horton H., Jr., and D. Bruce Means. "Two New Troglobitic Crayfishes (Decapoda, Astacidae) from Florida." *Proceedings of the Biological Society of Washington*, volume 84, number 46 (1972), pages 393-409, 2 figures.
- Hope, W. Duane. "The Current Status of the Systematics of Marine Nematodes." In N.C. Hulings, editor, *Proceedings of the First International Conference on Meiofauna*. *Smithsonian Contributions to Zoology*, number 76 (1971), pages 33-36.
- Jones, Meredith L. "*Magelona berkeleyi* n. sp. from Puget Sound (Annelida: Polychaeta), with a Further Redescription of *Magelona longicornis* Johnson and a Consideration of Recently Described Species of *Magelona*." *Journal of the Fisheries Research Board of Canada*, volume 28, number 10 (1971), pages 1445-1454.
- Jones, Meredith L., and Raymond B. Manning. "A Two-ocean Bouillabaisse Can Result If and When Sea-Level Canal is Dug." *Smithsonian*, volume 2, number 9 (1972), pages 12-21.
- Kornicker, Louis S. "Benthic Ostracoda (Myodocopina: Cypridinacea) from the South Shetland Islands and the Palmer Archipelago, Antarctica." *Antarctic Research Series*, volume 17 (1971), pages 167-216, 32 figures.
- Kornicker, Louis S., and I.G. Sohn. "Viability of Ostracode Eggs Egested by Fish and Effect of Digestive Fluids on Ostracode Shells—Ecologic and Paleoecologic Implications." *Bulletin Centre Recherche Pau - SNPA*, Supplement 5 (1971), pages 125-135, 3 tables, 1 plate.
- Manning, Raymond B. "Two New Species of *Gonodactylus* (Crustacea, Stomatopoda) from Eniwetok Atoll, Pacific Ocean." *Proceedings of the Biological Society of Washington*, volume 84 (1971), pages 73-80.
- \_\_\_\_\_. "*Lysiosquilla panamica*, A New Stomatopod Crustacean from the Eastern Pacific Region." *Proceedings of the Biological Society of Washington*, volume 84 (1971), pages 225-230.



- \_\_\_\_\_. "The Postlarva of the Stomatopod Crustacean *Heterosquilla polydactyla* (Von Martens)." *Proceedings of the Biological Society of Washington*, volume 84 (1971), pages 265-270.
- \_\_\_\_\_. "Stomatopod Crustacea. Eastern Pacific Expeditions of the New York Zoological Society. *Zoologica*, volume 56, number 3 (1972), pages 95-113.
- \_\_\_\_\_. "Two New Species of *Pseudosquilla* (Crustacea, Stomatopoda) from the Pacific Ocean." *American Museum Novitates*, number 2484 (1972), pages 1-11.
- Michel, A., and Raymond B. Manning. "The Pelagic Larvae of *Chorisquilla tuberculata* (Borradaile, 1907) (Stomatopoda)." *Crustaceana*, volume 22, part 2 (1972), pages 113-126.
- Morrison, J.P.E. "Sympatric Species of *Elliptio* in North Carolina." *Bulletin American Malacological Union for 1971* (February 1972), pages 38-39.
- Pawson, David L. "The Western Australian Psolid Holothurian *Ceto cuvieria* (Cuvier)." *Journal of the Royal Society of Western Australia*, volume 54, part 2, (1971), pages 33-39.
- \_\_\_\_\_. "*Siniotrochus phoxus* New Genus, New Species, A Myriotrochid Holothurian New to the United States East Coast." *Proceedings of the Biological Society of Washington*, volume 84, number 28 (1971), pages 231-234.
- \_\_\_\_\_. "*Ekkentropelma brychia* N.G., n. sp., an Antarctic Psolid Holothurian with a Functionally Lateral Sole." *Proceedings of the Biological Society of Washington*, volume 84, number 14 (1971), pages 113-118.
- \_\_\_\_\_. "Holothuroidea." Pages 287-290, in "Marion and Prince Edwards Islands." *South African Biological-Geological Expedition 1965-6*, Balkema, Cape Town, 1971.
- Pettibone, Marian H. "Descriptions of *Sthenelais fusca* Johnson 1897 and *S. berkeleyi* n. sp. (Polychaeta: Sigalionidae) from the Eastern Pacific." *Journal of the Fisheries Research Board of Canada*, volume 28, number 10 (1971), pages 1393-1401.
- \_\_\_\_\_. "Revision of Some Species Referred to *Leptonereis*, *Nicon*, and *Laeonereis* (Polychaeta: Nereididae)." *Smithsonian Contributions to Zoology*, number 104 (1971), pages 1-53, 27 figures.
- \_\_\_\_\_. "Partial Revision of the Genus *Sthenelais* Kinberg (Polychaeta: Sigalionidae) with Diagnoses of Two New Genera." *Smithsonian Contributions to Zoology*, number 109 (1971), pages 1-40, 24 figures.
- Prins, Rudolph, and Horton H. Hobbs, Jr. "A New Crayfish of the Subgenus *Puncticambarus* from the Savannah River Drainage with Notes on *Cambarus* (P.) *reburus* Prins." *Proceedings of the Biological Society of Washington*, volume 84, number 47 (1972), pages 411-420, 1 figure.
- Rice, Mary E. "Sipuncula of the Coral and Beachrock Communities of the Maldive Islands." *Symposium on Indian Ocean and Adjacent Seas*, number 222, section XXI (1971), page 140.
- Roper, Clyde F.E., and R.E. Young. "First Records of Juvenile Giant Squid *Architeuthis* (Cephalopoda; Oegopsida)." *Proceedings of the Biological Society of Washington*, volume 85, number 16 (1972), pages 205-222.
- Rosewater, Joseph. "The Family Littorinidae in the Indo-Pacific. Part II. The Subfamilies Tectariinae and Echininae." *Indo-Pacific Mollusca*, volume 2, number 12 (1972), pages 507-534.
- Sohn, I.G., and L.S. Kornicker. "Predation of Schistosomiasis Vector Snails by Ostracoda (Crustacea)." *Science*, volume 175 (1972), pages 1258-1259.
- Walton, Margaret, and Horton H. Hobbs, Jr. "The Distribution of Certain Entocytherid Ostracods on Their Crayfish Hosts." *Proceedings of the Academy of Natural Sciences*, volume 123, number 4 (1971), pages 87-103.



## DEPARTMENT OF MINERAL SCIENCES

- Arem, J.E. "The State of the Art—X-ray Crystallography. II—Single Crystal Methods." *Mineralogical Record*, volume 2 (1971), pages 111-122.
- \_\_\_\_\_. "The State of the Art—III—The Powder Method." *Mineralogical Record*, volume 2 (1971), pages 174-179.
- \_\_\_\_\_. "The Curse of The Million Dollar Diamond." *Rock and Gem*, Sept/Oct (1971), pages 76-78.
- \_\_\_\_\_. "Tools of the Trade." *Rock and Gem*, Nov/Dec (1971), pages 68-74.
- \_\_\_\_\_. "Synthetic Crystals: The Glittering Heart of Technology." *Saturday Review of Science*, volume 55, number 28 (1972), pages 47-52.
- Arem, J.E., and J. Ito. "Idocrase; Synthesis, Phase Relations and Crystal Chemistry." *Mineralogical Society of Japan, Special Paper*, number 1, IMA—AIGOD Meetings, volume 1 (1971), pages 63-66.
- Berger, I.A., P. Zubovic, J.C. Chandler, and Roy S. Clarke, Jr. "Occurrence and Significance of Formaldehyde in the Allende Carbonaceous Chondrite." *Nature*, volume 236 (1972), pages 155-158.
- Clarke, Roy S., Jr., editor. "The Meteoritical Bulletin number 50." *Meteoritics*, volume 6 (1971), pages 111-124.
- Desautels, P.E. *The Gem Kingdom*. 252 pages. New York: Random House, 1971.
- Foder, R.V., K. Keil, E. Jarosewich, and G.I. Huss. "Mineralogy and Chemistry of the Kyle, Texas Chondrite." *Meteoritics*, volume 6 (1971), pages 71-79.
- Fredriksson, K., J. Nelen, and W.G. Melson. Petrography and Origin of Lunar Breccias and Glasses." *Proceedings of Apollo II Lunar Science Conference*, volume 1 (1970), pages 419-432.
- Fredriksson K., J. Nelen, and A. Noonan. "Glasses and Sialic Components in Mare Procellarum Soil." *Proceedings of Second Lunar Science Conference*, volume 1 (1971), pages 727-735.
- Fredriksson, K., J. Nelen, A. Noonan, and F. Kraut. "Glasses, Breccias, Chondrules." In C. Watkins, editor, "Lunar Science III," *Lunar Science Institute Contribution*, number 88 (1972), pages 280-282.
- Fudali, R.F., and W.A. Cassidy. "Gravity Reconnaissance at Three Mauritanian Craters of Explosive Origin." *Meteoritics*, volume 7 (1972), pages 51-70.
- Fudali, R.F., and W.G. Melson. "Ejecta Velocities, Magma Chamber Pressure and Kinetic Energy Associated with the 1968 Eruption of Arenal Volcano." *Bulletin Volcanologique*, volume 35, number 2 (1972), pages 383-401.
- Jarosewich, E., R.V. Foder, K. Keil, and G.I. Huss. "Mineralogy, Petrology, and Chemistry of the Burdett, Kansas Meteorites." *Chemie der Erde*, volume 30 (1971), pages 103-113.
- Lawless, J., K. Kvenvolden, E. Peterson, C. Ponnampuruma, and E. Jarosewich. "Evidence for Amino-Acids of Extraterrestrial Origin in the Orgueil Meteorite." *Nature*, volume 236 (1972), pages 66-67.
- Mason, B. "The Carbonaceous Chondrites A Selective Review." *Meteoritics*, volume 6 (1971), pages 59-70.
- \_\_\_\_\_. *Principios de Geoquímica*. 403 pages. [Portuguese translation of third edition of *Principles of Geochemistry*.] Sao Paulo: Editora Poligono, 1971.
- \_\_\_\_\_. "Merrillite and Whitlockite or What's in a Name?" *Mineralogical Record*, volume 2 (1971), pages 277-279.
- \_\_\_\_\_, editor. *Handbook Of Elemental Abundances in Meteorites*. 555 pages. New York: Gordon and Breech, 1971.
- \_\_\_\_\_. "The Lunar Rocks." *Scientific American*, volume 225, number 4 (1971), pages 48-58.

- \_\_\_\_\_. "Materials Extraterrestre Sulla Terra." *Annuario della Enciclopedia dell Scienza e dell Technica* (1972), pages 102-118.
- Mason, B., E.P. Henderson, E. Jarosewich, W.G. Melson, and J. Nelen. "Composition of Luna 16-G52, and Apollo 14 Fines." *Lunar Science Institute Contribution number 88* (1972), pages 510-511.
- Mason, B., and E. Jarosewich. "The Composition of the Johnstown Meteorite." *Meteoritics*, volume 6 (1971), pages 241-245.
- Mason, B., E. Jarosewich, and J. Nelen. "Transition Element Distribution in Stony Meteorites and in Terrestrial and Lunar Rocks." *Chemie der Erde*, volume 30 (1971), pages 259-268.
- Mason, B., W.G. Melson, and J. Nelen. "Spinel and Hornblende in Apollo 14 Fines." *Lunar Science Institute Contribution number 88* (1972), pages 512-514.
- Melson, W.G. "Geology of the Lincoln Area, Lewis and Clark County, Montana." *Smithsonian Contributions to the Earth Sciences*, number 7 (1971), 22 pages.
- \_\_\_\_\_. "St. Paul's Rocks, Equatorial Atlantic: Petrogenesis, Radiometric Ages, and Implications on Sea-Floor Spreading." *Woods Hole Oceanographic Institution Report*, number 71-20 (1971), 38 pages.
- \_\_\_\_\_. "Volcanic Rocks Recovered from Leg 6, Deep Sea Drilling Project." *Initial Reports of the Deep Sea Drilling Project*, volume 6 (1972), pages 1119-1120.
- Melson, W.G., and B. Mason. "Lunar 'Basalts': Some Comparisons With Terrestrial and Meteoritic Analogs, and a Proposed Classification and Nomenclature." *Proceedings of the Second Lunar Science Conference*, volume 1 (1971), pages 459-467.
- Melson, W.G., B. Mason, J. Nelen, and S. Jacobson. "Apollo 14 Basaltic Rocks." *Lunar Science Institute Contribution number 88* (1972), pages 535-536.
- Olsen, E., and E. Jarosewich. "Chondrules: First Occurrence in an Iron Meteorite." *Science*, volume 174 (1971), pages 583-585.
- Simkin, T. "Geological Investigations in the Galapagos Islands During the Summer of 1970." *Noticias de Galapagos*, volume 18 (1971), pages 5-10.
- White, J.S., Jr., and Lee Boltin. *Color Underground*. 62 pages. New York: Charles Scribner's Son, 1971.
- White, J. S., Jr., and M. Fleischer. *Glossary of Mineral Species 1971*. Mineralogical Record Special Publication (1972), 120 pages.

#### DEPARTMENT OF PALEOBIOLOGY

- Benson, Richard H. "A New Cenozoic Deep-Sea Genus, *Abyssocythere* (Crustacea: Ostracoda: Trachyleberididae), with Descriptions of Five New Species." *Smithsonian Contributions to Paleobiology*, number 7 (1971), 25 pages, 12 figures, 3 plates, 1 table.
- Benson, Richard H., and P.C. Sylvester-Bradley. "Deep-Sea Ostracodes and the Transformation of Ocean to Sea in the Tethys." *Colloque sur la Paleoecologie des Ostracodes*, *Bulletin Société Nationale des Pétroles d'Aquitaine, Centre de Recherches - Pau*, volume 5, pages 63-92.
- Boardman, Richard S. "Mode of Growth and Functional Morphology of Autozooids in Some Recent and Paleozoic Tubular Bryozoa." *Smithsonian Contributions to Paleobiology*, number 8 (1971), 51 pages, 6 figures, 11 plates.
- \_\_\_\_\_. "Body Walls and Attachment Organs in Some Recent Cyclostomes and Paleozoic Trepustomes." Paper presented at the Second International Conference on Bryozoa, International Bryozoology Association, Durham, 1971.



- Buzas, Martin A. "Analyses of Species Densities by the Multivariate General Linear Model." *Limnology and Oceanography*, volume 16 (1971), pages 667-670.
- \_\_\_\_\_. "Biofacies Analysis of Presence or Absence Data Through Canonical Variate Analysis." *Journal of Paleontology*, volume 46 (1972), pages 55-57.
- Cheetham, Alan H. "Functional Morphology and Biofacies Distribution of Cheilostome Bryozoa in the Danian Stage (Paleocene) of Southern Scandinavia." *Smithsonian Contributions to Paleobiology*, number 6 (1971), 87 pages, 29 figures, 17 plates, 10 tables.
- \_\_\_\_\_. "Cheilostome Bryozoa of Late Eocene Age from Fua, Tonga." *United States Geological Survey Professional Paper*, 640-E (1972), pages E1-E26, 7 figures, 7 plates.
- Cifelli, Richard. "On the Temperature Relationships of Planktonic Foraminifera." *Journal of Foraminiferal Research*, number 4 (1971), pages 170-177.
- Emry, Robert J. "A New Species of *Agnotocastor* (Rodentia, Castoridae) from the Early Oligocene of Wyoming." *American Museum Novitates*, number 2485 (February 1972), pages 1-7, figures 1-2.
- \_\_\_\_\_. "A New Heteromyid Rodent from the Early Oligocene of Natrona County, Wyoming." *Proceedings of the Biological Society of Wyoming*.
- Fenner, P., G. Kelling, and Daniel J. Stanley. "Bottom Currents In Wilmington Submarine Canyon." *Nature (Physical Sciences)*, volume 229 (1971), pages 52-54.
- Hickey, Leo J., and R.W. Read. "A Revised Classification of Fossil Palm and Palm-like Leaves." *Taxon*, volume 21 (1971), pages 129-137.
- Hueber, Francis M. "*Astralocaulis*: A New Name for *Schizopodium* Harris." *Taxon*, volume 20, number 4 (August 1971), pages 640-641.
- \_\_\_\_\_. "*Sawdonia ornata*: A New Name for *Psilophyton princeps* var. *ornatum*." *Taxon*, volume 20, number 4 (August 1971), pages 641-642.
- \_\_\_\_\_. "Early Devonian Land Plants from Bathurst Island, District Franklin." *Geological Survey of Canada Paper*, number 71-28 (January 1972), 17 pages, 3 plates.
- Kauffman, Erle G. "Cretaceous Bivalvia." In Hallam, A., editor, *Atlas of Paleobiogeography*. Amsterdam: Elsevier Publishing Company, 1972.
- \_\_\_\_\_. "Evolutionary Rates and Patterns of North American Cretaceous Mollusca." *Proceedings of the 24th International Geological Congress* (1972), 24 pages, 5 figures.
- \_\_\_\_\_. "Ptychodus Predation upon a Cretaceous *Inoceramus*." *Palaeontology*, volume 15, part 3 (1972), pages 439-445, plate 81.
- Kier, Porter. "Upper Miocene Echinoids from the Yorktown Formation of Virginia and Their Environmental Significance." *Smithsonian Contributions to Paleobiology*, number 13 (1972), 41 pages, 7 figures, 10 plates, 2 tables.
- \_\_\_\_\_. "Tertiary and Mesozoic Echinoids of Saudi Arabia." *Smithsonian Contributions to Paleobiology*, number 10 (1972), 242 pages, 50 figures, 67 plates, 1 table.
- Pierce, Jack W., D.D. Nelson and Colquhoun. "Holocene Evolution of a Portion of the North Carolina Coast: Reply." *Geological Society of America Bulletin*, volume 82 (1971), pages 2371-2372, 3527-3528.
- \_\_\_\_\_. "Suspended Sediment off the Southeast Coast of the United States." Page 179, in *Proceedings of the 2nd National Coastal and Shallow Water Conference*, 1971.
- Ryan, W.F.B., Daniel J. Stanley, J.B. Hersey, D.A. Fahlquist, and T.D. Allan. "The Tectonics and Geology of the Mediterranean Sea." *The Sea*, volume 4, part 2 (1971), pages 387-492.



- Stanley, Daniel J. "Bioturbation and Sediment Failure in Some Submarine Canyons." *Vie et Milieu*, Supplement 22, pages 541-555.
- Stanley, Daniel J., C.E. Gehin and C. Bartolini. "Flysch-type Sedimentation in the Alboran Sea, Western Mediterranean." *Nature*, volume 228 (1971), pages 979-983.
- Stanley, Daniel J., H. Sheng, and C.P. Pedraza. "Lower Continental Rise East of the Middle Atlantic States: Predominant Sediment Dispersal Perpendicular to Isobaths." *Geological Society of America Bulletin*, volume 82 (1971), pages 1831-1839.
- Stanley, Daniel J., D.J.P. Swift, N. Silverberg, N.P. James, and R.G. Sutton. "Late Quaternary Progradation and Sand Spillover on the Outer Continental Margin off Nova Scotia, Southeast Canada." *Smithsonian Contributions to the Earth Sciences*, number 8 (1972), 88 pages, 83 figures, 6 tables.
- Stanley, Daniel J., and R. Unrug. "Submarine Channel Deposits, Fluxoturbidites and Other Indicators of Slope and Base-of-Slope Environments in Modern and Ancient Marine Basins." *Society of Economic Paleontologists and Mineralogists*, Special Paper 16 (1972), pages 287-340.
- Swift, D.J.P., Daniel J. Stanley, and J.R. Curray. "Relict Sediments on Continental Shelves: A Reconsideration." *Journal of Geology*, volume 79 (1971), pages 322-346.
- Sylvester-Bradley, P.C., and Richard H. Benson. "Terminology for Surface Features in Ornate Ostracodes." *Lethaia*, volume 4, number 3, pages 249-286.
- Waller, Thomas R. "The Pectinidae (Mollusca: Bivalvia) of Eniwetok Atoll, Marshall Islands." *The Veliger*, volume 14, number 3 (1972), pages 221-264, 22 figures, 8 plates, 13 tables.

## DEPARTMENT OF VETERBRATE ZOOLOGY

- Ali, Salim, and S. Dillon Ripley. "Frogmouths to Pittas." *Handbook of the Birds of India and Pakistan*, volume 4, xiii + 265 pages, 11 plates, 18 maps, numerous line drawings. London: Oxford University Press, 1970.
- \_\_\_\_\_. "Larks to the Grey Hypocolius." *Handbook of the Birds of India and Pakistan*, volume 5, xiii + 276 pages, 11 plates, 34 maps, numerous line drawings. London: Oxford University Press, 1972.
- \_\_\_\_\_. "Cuckoo-Shrikes to Babaxes." *Handbook of the Birds of India and Pakistan*, volume 6, xiii + 245 pages, 8 plates, 38 maps, numerous line drawings. London: Oxford University Press, 1971.
- \_\_\_\_\_. "Laughing Thrushes to the Mangrove Whistler." *Handbook of the Birds of India and Pakistan*, volume 7, xiii + 236 pages, 10 plates, 28 maps, numerous line drawings. London: Oxford University Press, 1972.
- Amerson, A. Binion, Jr. "The Natural History of French Frigate Shoals, Northwestern Hawaiian Islands." *Atoll Research Bulletin*, number 150 (20 December 1971), 383 pages, 74 figures, 149 tables.
- Banks, Richard C. "Publication Dates of the North American Fauna Series." *Auk*, volume 88, number 3 (1971), page 676.
- \_\_\_\_\_. "Proceedings of the Eighty-ninth Stated Meeting of the American Ornithologists' Union." *Auk*, volume 89, number 1 (1972), pages 114-162.
- Banks, Richard C., and Roger B. Clapp. "Birds Imported into the United States in 1969." U.S. Department of the Interior, Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, *Special Scientific Report—Wildlife*, number 148, 91 pages.

- Banks, Richard C., and Eley P. Denson. "Department of the Interior's Regulations on Importation and Shipment of Scientific and Zoological Specimens of Fish and Wildlife." *Journal of Mammalogy*, volume 52, number 2, pages 491-493, and *Copeia*, number 2 (1971), pages 384-386.
- Brownell, Robert L., Jr. "Whales, Dolphins and Oil Pollution." Pages 255-276, in D. Straughan, editor, *Biological and Oceanographic Survey of the Santa Barbara Channel Oil Spill, I., Biology and Bacteriology*. Los Angeles: Allan Hancock Foundation, University of Southern California, 1971.
- Brownell, Robert L., Jr., and Burney J. LeBoeuf. "California Sea Lion Mortality: Natural or Artifact." Pages 287-306, in D. Straughan, editor, *Biological and Oceanographic Survey of the Santa Barbara Channel Oil Spill I, Biology and Bacteriology*. Los Angeles: Allan Hancock Foundation, University of Southern California, 1971.
- Dailey, M.D. and Robert L. Brownell, Jr. "A Checklist of Marine Mammal Parasites." Pages 528-589, in S. H. Ridgway, editor, *Mammals of the Sea; Biology and Medicine*. Springfield: Charles C. Thomas, 1972.
- Desfayes, M. "The Blackbird *Turdus merula maximus* in Nepal." *Journal of the Bombay Natural History Society*, volume 67 (1971), pages 571-572.
- \_\_\_\_\_. "Revision générique des Carduélidés." *L'Oiseau et la Revue française d'Ornithologie*, volume 41 (1971), pages 130-147.
- Gardner, A., and D. Wilson. "A Melanized Subcutaneous Covering of the Cranial Musculature in the Phyllostomid Bat, *Ectophylla alba*." *Journal of Mammalogy*, volume 52, pages 854-855.
- Gibbs, Robert H., Jr. "Notes on Fishes of the Genus *Eustomias* (Stomiatoidei, Melanostomiidae) in Bermuda Waters, with the Description of a New Species." *Proceedings of the Biological Society of Washington*, volume 84, number 29 (1971), pages 235-243, 2 figures.
- Gibbs, Robert H., Jr., Richard H. Goodyear, Michael J. Keene, and Dail W. Brown. "Biological Studies of the Bermuda Ocean Acre II. Vertical Distribution and Ecology of the Lantern Fishes (Family Myctophidae)." Report to U.S. Navy Underwater Systems Center (1971), pages 1-141, 85 tables, 72 figures.
- Gibbs, Robert H., Jr., and Clyde F. E. Roper. "Ocean Acre: Preliminary Report on Vertical Distribution of Fishes and Cephalopods." *Proceedings of an International Symposium on Biological Sound Scattering in the Ocean*. Report number 005, pages 119-133, 5 tables, 5 figures. Washington, D.C.: Maury Center for Ocean Science, Department of Navy, 1971.
- Gibbs, Robert H., Jr., Clyde F.E. Roper, Dail W. Brown, and Richard H. Goodyear. "Biological Studies of the Bermuda Ocean Acre I. Station Data, Methods, and Equipment for Cruises I through II, October 1967-January 1971." Report to U.S. Navy Underwater Systems Center (1971), pages 1-49, 2 tables, 14 figures.
- Handley, C.O., Jr. "Appalachian Mammalian Geography—Recent Epoch." In "The Distributional History of the Biota of the Southern Appalachians." *Virginia Polytechnic Institute and State University Research Division Monograph*, number 4, part 3: Vertebrates (5 April 1972), pages 263-303, 29 figures.
- Handley, C.O., Jr., and K.C. Ferris. "Descriptions of New Bats of the Genus *Vampyrops*." *Proceedings of the Biological Society of Washington*, volume 84 (19 February 1972), pages 519-523.
- Harper, Peter C., George E. Watson, and J. Phillip Angle. "New Records of the Kerguelen Petrel (*Pterodroma brevirostris*) in the South Atlantic and Pacific Oceans." *Notornis*, volume 19, part 1 (March 1972), pages 56-60.
- Harrison, Richard J., and Robert L. Brownell, Jr. "The Gonads of the South American Dolphins, *Inia geoffrensis*, *Pontoporia blainvillei*, and *Sotalia fluviatilis*." *Journal of Mammalogy*, volume 52, number 2 (1971), pages 413-419.



- Jenkins, Robert E., and Ernest A. Lachner. "Criteria for Analysis and Interpretation of the American Fish Genera *Nocomis* Girard and *Hybopsis* Agassiz." *Smithsonian Contributions to Zoology*, number 90 (12 November 1971) 15 pages, 1 figure, 4 tables.
- Jenkins, Robert E., Ernest A. Lachner, and Frank J. Schwartz. "Fishes of the Central Appalachian Drainages: Their Distribution and Dispersal." *Virginia Polytechnic Institute and State University Research Division Monograph*, number 4, part 3: Vertebrates (5 April 1972), pages 43-117, 1 figure, 9 tables.
- Jones, Clyde. "Notes on the Anomalurids of Rio Muni and Adjacent Areas." *Journal of Mammalogy*, volume 52 (1971), pages 568-572.
- \_\_\_\_\_. "Natural Diets of Wild Primates." Pages 58-77, in R. N. T-W. Fiennes, editor, *Pathology of Simian Primates, Part I: General Pathology*. Basel: S. Karger, 1972.
- \_\_\_\_\_. "Observations on Dental Deposits and Deficiencies of Wild Talapoin Monkeys (*Cercopithecus talapoin*) Collected in Rio Muni, West Africa." *Laboratory Primate Newsletter*, number 11 (1972), pages 28-34.
- Jones Clyde, and J. Paradiso. "Mammals Imported into the United States in 1969." U.S. Department of the Interior, Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, *Special Scientific Report—Wildlife*, number 147 (1972), ii + 33 pages.
- Jones, Clyde, and R. Suttkus. "Notes on Netting Bats for Eleven Years in Western New Mexico." *Southwestern Naturalist*, volume 16 (1972), pages 261-266.
- \_\_\_\_\_. "Wing Loading in *Plecotus rafinesquii*." *Journal of Mammalogy*, volume 52, pages 458-460.
- Lachner, Ernest A. "Proposed Suppression Under the Plenary Powers of Two *Nomina Oblita* in the Family Echeneididae (Pisces)." *Bulletin of Zoological Nomenclature*, volume 28, parts 5/6 (December 1971), pages 168-170.
- Lachner, Ernest A., and Robert E. Jenkins. "Systematics, Distribution, and Evolution of the Chub Genus *Nocomis* Girard (Pisces: Cyprinidae) of the Eastern United States, with Descriptions of New Species." *Smithsonian Contributions to Zoology*, number 85 (17 August 1971), 97 pages, 30 figures, 27 tables.
- \_\_\_\_\_. "Systematics, Distribution, and Evolution of the *Nocomis biguttatus* Species Group (Family Cyprinidae: Pisces) with a Description of a New Species from the Ozark Upland." *Smithsonian Contributions to Zoology*, number 91 (6 October 1971), 28 pages, 8 figures, 9 tables.
- Lachner, Ernest A., and Martin L. Wiley. "Populations of the Polytypic Species *Nocomis leptocephalus* (Girard) with a Description of a New Subspecies." *Smithsonian Contributions to Zoology*, number 92 (12 November 1971), 35 pages, 4 figures, 15 tables.
- Locke, Louis N., and Richard C. Banks. "Avian Cholera in Cedar Waxwings in Ohio." *Journal of Wildlife Diseases*, volume 8 (1972), page 106.
- Manville, Richard H. (Anon.) "Kellogg Memorial Fund." *Journal of Mammalogy*, volume 52, number 1, page 258.
- \_\_\_\_\_. "Malcolm Davis (1899-1970)." [Obituary.] *Auk*, volume 88, number 4, pages 962-963.
- \_\_\_\_\_. "Study Shows Sea Harvest Conducted in Humane Manner." *The Wildlife Society News*, number 137, page 72.
- Olson, Storrs L. "Two Vagrants to Ascension Island." *Bulletin of the British Ornithologists' Club*, volume 91 (1971), pages 90-92.
- \_\_\_\_\_. "Taxonomic Comments on the Eurylaimidae." *Ibis*, volume 113 (1971), pages 507-516.



- \_\_\_\_\_. "The Ascension Island Rail." Lecture. American Ornithologists' Union, Seattle, Washington, September 1971.
- \_\_\_\_\_. "The Extinct Avifauna of St. Helena." Lecture. Society of Vertebrate Paleontology, Washington, D.C., November 1971.
- \_\_\_\_\_. "The Evolution of the Rails of the South Atlantic Islands." Lecture. Cooper Ornithological Society, Las Cruces, New Mexico, April 1972.
- Paradiso, John L. "A New Subspecies of *Cynopterus sphinx* (Chiroptera: Pteropodidae) from Serasan (South Natuna) Island, Indonesia." *Proceedings of the Biological Society of Washington*, volume 84 (1971), pages 293-300.
- \_\_\_\_\_. "Status Report on Cats (Felidae) of the World, 1971." U.S. Department of the Interior, Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, *Special Scientific Report—Wildlife*, number 157.
- Paradiso, John L., and R. Nowak. "A Report on the Taxonomic Status and Distribution of the Red Wolf." U.S. Department of the Interior, Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, *Special Scientific Report—Wildlife*, number 145, (1972), ii + 36 pages.
- Paradiso, John, and R. Nowak. "Taxonomic Status of the Sonoran Pronghorn." *Journal of Mammalogy*, volume 52, number 4 (1971), pages 855-858.
- Peters, James A. "A New Approach in the Analysis of Biogeographic Data." *Smithsonian Contributions to Zoology*, number 107 (21 October 1971), pages 1-28, 15 figures, 2 tables.
- \_\_\_\_\_. "The Computer and the Collection-at-Large." *Curator*, volume 13, number 4 (1970 [1972]), pages 263-267.
- \_\_\_\_\_. "Biostatistical Programs in BASIC Language for Time-shared Computers: Coordinated with the Book 'Quantitative Zoology'." *Smithsonian Contributions to Zoology*, number 69 (reprinted 1 March 1972, original 10 March 1971), pages 1-46.
- \_\_\_\_\_. "Career Opportunities for the Evolutionist." *Society for the Study of Evolution*, 1971, pages 1-4.
- \_\_\_\_\_. "Time-shared Computer Programming." Two lectures. Smithsonian Institution, Washington, D.C. 5 and 6 July 1971.
- \_\_\_\_\_. "Computer Use in the Systematics Laboratory." Lecture. University of Kansas, Lawrence, 1 February 1972.
- Peters, James A., and Julie Booth. "Behavioral Studies on the Green Turtle, *Chelonia mydas*, in the Sea." Lecture. American Association for the Advancement of Science, Philadelphia, Pennsylvania, 29 December 1971.
- Peterson, Roger T., and George E. Watson. "Franklin's Gull and Bridled Tern in Southern Chile." *Auk*, volume 88, number 3 (1 July 1971), pages 670-671.
- Pine, Ronald H. "A Review of the Long-Whiskered Rice Rat, *Oryzomys bombycinus* Goldman." *Journal of Mammalogy*, volume 52, number 3 (1971), pages 590-596.
- Pine, Ronald H., Dillford C. Carter, and Richard K. LaVal. "Status of *Bauerus* Van Gelder and its Relationships to Other Nyctophiline Bats." *Journal of Mammalogy*, volume 52, number 4 (1971), pages 663-669.
- Ripley, S. Dillon. "Umweltprobleme in Amerika: Ein Paradigma?" *Schweitzer Monatshefte*, volume 50, number 6 (September 1970), pages 508-511. [Not previously reported.]
- \_\_\_\_\_. "Conservation Comes of Age." *American Scientist*, volume 59, number 5 (September-October 1971), pages 529-531.
- \_\_\_\_\_. "Extinction's Tide and the Ripples and Eddies of Hope." *Smithsonian*, volume 2, number 11 (February 1972), pages 20-26.
- Ripley, S. Dillon, and Gorman M. Bond. "Systematic Notes on a Collection of Birds from Kenya." *Smithsonian Contributions to Zoology*, number 111 (16 November 1971), 21 pages, 1 figure.

- Setzer, Henry W. "New Bats of the Genus *Laephotis* from Africa (Mammalia: Chiroptera)." *Proceedings of the Biological Society of Washington*, volume 84, number 32, pages 259-264.
- Setzer, Henry W., and Gary L. Ranck. "A New Gerbil (Genus *Gerbillus*) from the Chad." *Proceedings of the Biological Society of Washington*, volume 84, number 7 (30 June 1971), pages 55-58.
- Schlitter, Duane A., and Henry W. Setzer. "A New Species of Short-tailed Gerbil (*Dipodillus*) from Morocco (Mammalia: Cricetidae: Gerbillinae)." *Proceedings of the Biological Society of Washington*, volume 84, number 45 (29 February 1972), pages 385-392.
- Solomon, G.B., and C.O. Handley, Jr. "*Capillaria hepatica* (Bancroft, 1893) in Appalachian Mammals." *Journal of Parasitology*, volume 57 (1971), pages 1142-1144.
- Springer, Victor G., and William F. Smith-Vaniz. "Mimetic Relationships Involving Fishes of the Family Blenniidae." *Smithsonian Contributions to Zoology*, number 112 (2 February 1972), 36 pages, 4 figures, 7 plates.
- \_\_\_\_\_. "A New Tribe (Phenablenniini) and Genus (*Phenablennius*) of Blennioid Fishes Based on *Petroscirtes heyligeri* Bleeker." *Copeia*, number 1 (1970), pages 64-71.
- Thorington, Richard W., Jr. "Survey of Nonhuman Primates Being Maintained on 1 January 1971." *ILAR News*, volume 15, number 1 (1971), pages 7-10.
- \_\_\_\_\_. "The Identification of Primates Used in Viral Research." *Laboratory Animal Science*, volume 21, number 6 (1971), pages 1074-1077.
- \_\_\_\_\_. "Censusing Wild Populations of South American Monkeys." In "Second International Symposium on Health Aspects of the International Movement of Animals." *Pan American Health Organization Scientific Publication*, number 235 (1972), pages 26-32.
- \_\_\_\_\_. "Importation, Breeding, and Mortality of New World Primates in the United States." *International Zoo Yearbook*, volume 12 (1972), pages 18-23.
- \_\_\_\_\_. "Rhesus Monkeys for Dissection." *Carolina Tips*, volume 35, (1 June 1972), pages 21-22.
- Tuck, Robert G., Jr. "Rediscovery and Redescription of the Khuzistan Dwarf Gecko, *Microgecko helenae* Nikolsky (Sauria: Gekkonidae)." *Proceedings of the Biological Society of Washington*, volume 83, number 42 (9 February 1971), pages 477-482, 3 figures.
- \_\_\_\_\_. "Amphibians and Reptiles from Iran in the United States National Museum Collection." *Bulletin of the Maryland Herpetological Society*, volume 7, number 3 (September 1971), pages 48-86, 9 figures, 23 maps, 1 table.
- \_\_\_\_\_. "The Snakes of Southern Maryland." Lecture. Southern Maryland Audubon Society, La Plata, Maryland, 4 April 1972.
- Tuck, Robert G., Jr., M. Kathleen Klimkiewicz, and Kay G. Ferris. "Notes on Pilot Blacksnake (*Elaphe obsoleta obsoleta*) (Serpentes: Colubridae) Eggs and Hatchlings." *Bulletin of the Maryland Herpetological Society*, volume 7, number 4 (December 1971), pages 96-99, 1 table.
- Watson, George E. "*Diomedea leptorhyncha* Coues, 1966 (Aves): Proposed Suppression Under the Plenary Powers." *Bulletin of Zoological Nomenclature*, volume 28, page 106.
- \_\_\_\_\_. "Slender-billed Gull *Larus genei* at Lake Manyara, Tanzania." *Bulletin of the British Ornithologists' Club*, volume 91, number 6 (20 December 1971), page 167.
- \_\_\_\_\_. *Eudypetes sclateri* Buller, 1888, and *Eudypetes robustus* Oliver, 1963 (Aves, Spheniscidae): Proposed Preservation Under the Plenary Powers."



- Bulletin of Zoological Nomenclature*, volume 28, parts 3/4 (December 1971), pages 92-93.
- Watson, George E., and George J. Divoky. "Identification of *Diomedea leptorhyncha* Coues 1966, An Albatross with Remarkably Small Salt Glands." *The Condor*, volume 73, number 4 (Winter, 1971), pages 487-489.
- Watson, George E., J. Phillip Angle, Peter C. Harper, Margaret A. Bridge, Roberto P. Schlatter, W.L. N. Tickell, John C. Boyd, and Maria M. Boyd. "Birds of the Antarctic and Subantarctic." *Antarctic Map Folio Series*, Vivian C. Bushnell, editor, number 14, pages 1-18, 1 plate, 39 maps.
- Wilson, D., and J. Findley. "Randomness in Bat Homing." *American Naturalist*, volume 106, pages 418-424.
- Weitzman, Stanley H., and William L. Fink. "A New Species of Characid Fish of the Genus *Nematobrycon* from the Rio Calima of Colombia (Pisces, Characoidei, Characidae)." *Beaufortia*, volume 19, number 248 (27 July 1971), pages 57-77.
- Zug, George R. "Buoyancy, Locomotion, Morphology of the Pelvic Girdle and Hindlimbs and Systematics of Cryptodiran Turtles." *Miscellaneous Publications, Museum of Zoology, University of Michigan*, number 142 (1971), pages 1-98.
- \_\_\_\_\_. "American Musk Turtles, *Sternothaerus* or *Sternotherus*." *Herpetologica*, volume 27, number 4 (1971), pages 446-449.
- \_\_\_\_\_. "Frog Locomotion and Morphology." Lecture. Wildlife Laboratory, D.A.S.F., Moitaka, Papua-New Guinea, January 1972.
- Zug, George R., and A. Schwartz. "*Deirochelys*, *D. reticularia*." *Catalogue of American Amphibians and Reptiles*, number 107 (1971), pages 1-3.

### National Air and Space Museum

- Casey, Louis S. "Introduction" In Mohler and Johnson, Wiley Post, His *Winnie Mae*, and the World's First Pressure Suit." *Smithsonian Annals of Flight*, number 8 (22 November 1971), vii + 127 pages, 139 figures.
- Mikesh, Robert C. *Aircraft in Museums Around the World*. Sections 1 and 2. [Multilith.]

### Smithsonian Astrophysical Observatory

- Ahmad, I.A., and W.A. Deutschman. "Ultraviolet Photometry of the Moon with the Telescope Experiment on the OAO-II." Presented at the Orbiting Astronomical Observatory Symposium, Amherst, Massachusetts, August 1971.
- Allison, A.C. "Spin-Change Frequency Shifts in H-H Collisions." *Physical Review A*, volume 5 (1972), pages 2695-2696.
- \_\_\_\_\_. "The Calculation of Absorption and Elastic Cross Sections Using the Optical Potential." *Computer Physics Communications*, volume 3 (1972), pages 173-179.
- Allison, A.C., and A. Dalgarno. "Continuity at the Dissociation Threshold in Molecular Absorption." *Journal of Chemical Physics*, volume 55 (1971), pages 4342-4344.
- \_\_\_\_\_. "Rotational Excitation of CN by Electron Impact." *Astronomy and Astrophysics*, volume 13 (1971), pages 331-332.
- Allison, A.C., A. Dalgarno, and N.W. Pasachoff. "Absorption by Vibrationally Excited Molecular Oxygen in the Schumann-Runge Continuum." *Planetary and Space Science*, volume 19 (1971), pages 1463-1473.



- Allison, A.C., and F. J. Smith. "Transport Properties of Atomic Hydrogen." *Atomic Data*, volume 3 (1971), pages 317-321.
- Avrett, E.H., and R. Loeser, "Radiative Transfer in Two-Component Stellar Atmospheres." *Journal of Quantitative Spectroscopy and Radiative Transfer*, volume 11 (1971), pages 559-571.
- Baker, B.H., P.A. Mohr, and L.A.J. Williams. "Geology of the Eastern Rift System." *The Geological Society of America Special Paper*, number 136 (1972), 67 pages.
- Bottcher, C., A.C. Allison, and A. Dalgarno. "Potential Curves for  $\text{Na}_2^+$  and Resonance Charge Transfer Cross-Sections." *Chemical Physics Letters*, volume 11 (1971), pages 307-309.
- Dalgarno, A., and G.W.F. Drake. "An Energy Maximization Method for Autoionizing States." *Chemical Physics Letters*, volume 11 (1971), pages 509-511.
- D'Amico, J., J. DeFelice, E.L. Fireman, C. Jones, and G. Spannagel. "Tritium and Argon Radioactivities and Their Depth Variations in Apollo Samples." Pages 1825-1839, in *Proceedings of the 2nd Lunar Science Conference, Geochimica et Cosmochimica Acta*, volume 2. Cambridge, Massachusetts: MIT Press, 1971.
- Davis, R.J. "The Telescope Catalog of Ultraviolet Observations." Presented at the Orbiting Astronomical Observatory Symposium, Amherst, Massachusetts, August 1971.
- \_\_\_\_\_. "New Astronomy Space Experiments with Television Scanning." Presented at the International Conference, Space Applications of Television Tubes, Paris, November 1971.
- Davis, R.J., W.A. Deutschman, C.A. Lundquist, Y. Nozawa, and S.D. Bass. "Ultraviolet Television Data from the Orbiting Astronomical Observatory, I: Instrumentation and Analysis Techniques for the Telescope Experiment." Presented at the Orbiting Astronomical Observatory Symposium, Amherst, Massachusetts, August 1971.
- Decker, R.W., P. Einarsson, and P.A. Mohr. "Rifting in Iceland: New Geodetic Data." *Science*, volume 173 (1971), pages 530-533.
- Deutschman, W.A. "A Calibration Model for a Stellar Photometer Using a SEC Vidicon." *Publications of the Astronomical Society of the Pacific*, volume 84 (1972), pages 123-126.
- \_\_\_\_\_. "Ultraviolet Photometry of the Moon with the Telescope Experiment on the OAO-II." Presented at the Orbiting Astronomical Observatory Symposium, Amherst, Massachusetts, August 1971.
- \_\_\_\_\_. "Orbital Operation and Calibration of SEC Vidicons in the Telescope Experiment." Presented at the Fifth Symposium on Photo-Electronic Image Devices, London, September 1971.
- Deutschman, W.A., and C.A. Lundquist. "A Search for the Pulsar Centaurus X-3 with the Telescope Experiment on OAO 2." Presented at the 15th International COSPAR Meeting, Madrid, May 1972.
- Esposito, R., and M.D. Grossi. "Channel Characterization for Digital Communications in Ground-to-Space HF Paths." Presented at the 11th Technical Meeting of the Joint Satellite Studies Group, Florence, October 1971.
- Fazio, G.G., P. Albats, S.E. Ball, J.P. Delvaille, K.I. Greisen, D.K. Koch, B. McBreen, D.R. Hearn, and H.F. Helmken. "A Large Area Gas-Cerenkov Telescope for High-Energy Gamma-Ray Astronomy." *Nuclear Instruments and Methods*, volume 95 (1971), pages 189-194.
- Fazio, G.G., H.F. Helmken, E. O'Mongain, G.H. Rieke, and T.C. Weekes. "A Search for  $10^{11}$  to  $10^{12}$  eV Gamma Rays from Discrete Sources." Pages 1697-1702, in *Proceedings of the 12th International Conference on Cosmic Rays*, volume 5. Hobart, Tasmania: University of Tasmania, 1971.
- Fireman, E.L., J. D'Amico, J. DeFelice, and G. Spannagel. "Radioactivities in Returned Lunar Material." Presented at the 3rd Lunar Science Conference, Houston, Texas, January 1972.

- Fireman, E.L., and G. Spannagel. "Fresh Meteorites in 1970 and the Cosmic-Ray Gradient." *Chemie der Erde*, volume 30 (1971), numbers 1/4.
- Flannery, M.R. "The Binary-Encounter Theory for a General Interaction." *Journal of Physics B*, volume 4 (1971), pages 892-895.
- \_\_\_\_\_. "Excitation and Ionization of Hydrogen by Hydrogen Atom Impact." *Canadian Journal of Physics*, volume 50 (1972), pages 61-64.
- Franklin, F.A., G. Colombo, and A.F. Cook. "A Dynamical Model for the Radial Structure of Saturn's Rings. II." *Icarus*, volume 15 (1971), pages 80-92.
- Gaposchkin, E.M. "Ephemeris Calculation for Geos C." Presented at the Sea Surface Topography Conference, Miami, Florida, October 1971.
- Gaposchkin, E.M., and K. Lambeck. "The Earth's Gravity Field to 16th Degree and Station Coordinates from Satellite and Terrestrial Data." *Journal of Geophysical Research*, volume 76 (1971), pages 4855-4883.
- Gaposchkin, E.M., G. Veis, Y. Kozai, and G.C. Weiffenbach. "Geodetic Studies at the Smithsonian Astrophysical Observatory." Presented at the International Union of Geodesy and Geophysics Conference, Moscow, August 1971.
- Giacaglia, G.E.O., and C.A. Lundquist. "Sampling Functions as an Alternative to Spherical Harmonics." Pages 149-153, in S. Yumi, editor, *Rotation of the Earth, Proceedings of the International Astronomical Union Symposium No. 48*. Sendai, Japan: Sasaki Printing and Publishing Company, 1972.
- Gingerich, O. "Apianus's Astronomicum Caesareum and its Leipzig Facsimile." *Journal for the History of Astronomy*, volume 2 (1971), pages 168-177.
- \_\_\_\_\_. "Kepler and the Rudolphine Tables." *Sky and Telescope*, volume 42 (1971), pages 1-8.
- \_\_\_\_\_. "Kepler's Treatment of Redundant Observations or, The Computer Versus Kepler Revisited." Presented at International Kepler Symposium, Weil de Stadt, 1971.
- Gingerich, O., R.W. Noyes, W. Kalkofen, and Y. Cuny. "The Harvard-Smithsonian Reference Atmosphere." *Solar Physics*, volume 18 (1971), pages 347-365.
- Grindlay, J.E. "Possible Evidence for Pulsed  $10^{12}$  eV Gamma Rays from NP 0532." *Nature (Physical Science)*, volume 234 (1971), pages 153-155.
- \_\_\_\_\_. "New Studies of EAS and Cosmic-Ray Composition at Energies  $3 \times 10^{12}$  eV." Presented at the 12th International Conference on Cosmic Rays, Hobart, Tasmania, August 1971.
- \_\_\_\_\_. "Detection of Pulsed Gamma Rays of  $10^{12}$  eV from the Pulsar in the Crab Nebula." *Astrophysical Journal Letters*, volume 174 (1972), pages L9-L17.
- Grindlay, J.E., and J.A. Hoffman. "Compton-Synchrotron Spectrum of the Crab Nebula with the Pulsar Magnetic Field." *Astrophysical Letters*, volume 8 (1971), pages 209-213.
- Grossi, M.D. "Radio Communications and Wind Measures by Meteor Trail Forward Scattering." Presented at the 23rd International Science Conference, Pakistan Association for the Advancement of Science, Peshawar, West Pakistan, September 1971.
- \_\_\_\_\_. "Comparative Analysis of the Results of Two Recent Experiments of HF Magnetoconjugate Propagation." Presented at USNC/URSI Spring Meeting, Washington, D.C., April 1972.
- \_\_\_\_\_. "ULF Propagation Experiments." Presented at the 2nd Conference on sub-LF Downlink Satellite Communications, Washington, D.C., June 1972.
- Grossi, M.D., H.T. Chang, R.K. Cross, and J.V. Harrington. "Propagation of e.m. Waves at Subhertz Frequencies in the Earth Crust Waveguide." Presented at the Navy Long Radio Wave Propagation Symposium, Washington, D.C., April 1972.
- Grossi, M.D., R.B. Southworth, and S.K. Rosenthal. "Radar Observations of Meteor Winds above Illinois." Pages 205-208, in W.L. Webb, editor, *Thermospheric Circulation*. Cambridge, Massachusetts: MIT Press, 1972.
- Hall, D.N.B., R.W. Noyes, and T.R. Ayres. "The Identification of  $^{13}\text{C}$   $^{16}\text{O}$  in the Infrared Sunspot Spectrum and the Determination of the Solar  $^{12}\text{C}/^{13}\text{C}$  Abundance Ratio." *Astrophysical Journal*, volume 171 (1972), pages 615-620.



- Haramundanis, K. "The Construction and Documentation of the Telescope Catalog." Presented at the International Astronomical Union Symposium No. 50, Argentina, October 1971.
- Hawkins, G.S. "Micrometeorite and Cosmic Dust Data Near the Earth's Orbit." Presented at the 15th International COSPAR Meeting, Madrid, May 1972.
- Hegyi, D.J., W.A. Traub, and N.P. Carleton. "Cosmic Background Radiation at 1.32 mm." *Physical Review Letters*, volume 28 (1972), pages 1541-1544.
- Helmken, H.F., and J.A. Hoffman. "Gas-Čerenkov Detector for Gamma-Ray Astronomy." Presented at the 12th International Conference on Cosmic Rays, Hobart, Tasmania, August 1971.
- Hodge, P.W. "The Population I Content of the Elliptical Companions of M31." Pages 46-47, in D.S. Evans, editor, "External Galaxies and Quasi-Stellar Sources," of *Proceedings of the International Astronomical Union Symposium No. 44*. Dordrecht, Holland: D. Reidel Publishing Company, 1972.
- \_\_\_\_\_. "Dwarf Galaxies." *Annual Reviews of Astronomy and Astrophysics*, volume 9 (1971), pages 35-66.
- Hodge, P.W., D. E. Brownlee, and W. Bucher. "Micrometeoroid Flux from Surveyor Glass Surfaces," Pages 2781-2789, in *Proceedings of the 2nd Lunar Science Conference, Geochimica et Cosmochimica Acta*, volume 3. Cambridge, Massachusetts: MIT Press, 1971.
- Hodge, P.W., W. Porch, E. Mannery, and R. Charlson. "Use of Astronomical Telescopes to Measure Background Aerosol Pollution." *Nature*, volume 233 (1971), page 326.
- Hodge, P.W., and F.W. Wright. "Dust Fall Measures—An Arctic Clean Air Baseline." *Project ASTRA Publication Number 5* (1972).
- \_\_\_\_\_. "A Study of the Meteoritic Particles in the Soil Surrounding the Henbury Meteorite Craters." *Journal of Geophysical Research*, volume 76 (1971), pages 3880-3895.
- \_\_\_\_\_. "Summary of a 10-year High Altitude Atmospheric Dust Collecting Program." *Project ASTRA Publication Number 7* (1971).
- \_\_\_\_\_. "Note on LMC Variable Stars" In L. Detre and B. Szeidl, editors, *Commission 27 of the International Astronomical Union Information Bulletin on Variable Stars*, number 590, pages 1-8.
- Horowitz, P., C. Papaliolios, and N. Carleton. "Stability of the Crab Pulsar." *Astrophysical Journal*, volume 172 (1972), pages L51-L54.
- Hummer, D.G., and G. Rybicki. "Formation of Spectral Lines." *Annual Reviews of Astronomy and Astrophysics*, volume 9 (1971), pages 237-270.
- Jacchia, L. "Semi-Annual Variation in the Heterosphere: A Reappraisal." *Journal of Geophysical Research*, volume 76 (1971), pages 4602-4607.
- Jacchia, L.G., and J.W. Slowey. "A Study of the Variations in the Thermosphere Related to Solar Activity." Presented at the 15th International COSPAR Meeting, Madrid, May 1972.
- Jura, M., and A. Dalgarno. "Time-Dependent Models of the Interstellar Gas." *Astrophysical Journal*, volume 174, number 2 (1972), pages 141-143.
- Kalaghan, P.M., and A. Dalgarno. "Hyperfine Structure of the Molecular Ion  $H_2^+$ ." *Physics Letters A*, volume 33 (1972), pages 485-486.
- Kirshner, R.P., and R.W. Noyes. "Extreme Ultraviolet Observations of a Surge." *Solar Physics*, volume 20 (1971), pages 428-437.
- Kleinmann, D.E., E. Becklin, J.A. Frogel, G. Neugebauer, E. Ney, and D. Stecker. "Infrared Observations of the Core of Centaurus A, NGC 5128." *Astrophysical Journal Letters*, volume 170 (1971), page L15.
- Kleinmann, D.E., J.A. Frogel, and S.E. Persson. "Infrared Observations of the Small H II Region Sh 266." *Astrophysical Letters*, volume 11 (1972), page 95.
- Lecar, M., editor. "The Gravitational N-Body Problem." in *Proceedings of the 10th International Astronomical Union Colloquium, Astrophysics and Space Science*, volume 13. Dordrecht, Holland: D. Reidel Publishing Company, 1972.



- Lehr, C.G., M.R. Pearlman, G.M. Mendes, and C. Tsiang. "The Laser Network of the Smithsonian Astrophysical Observatory." Presented at the XVth General Assembly of the International Union of Geodesy and Geophysics, Moscow, August 1971.
- Levine, M. "Measurement of the Gravitational Redshift Using a Clock in an Orbiting Satellite." In R.W. Davies, editor, "Proceedings of the Conference on Experimental Tests of Gravitational Theories," *Jet Propulsion Laboratory Report 33-499*, 1971.
- \_\_\_\_\_. "Recent Developments Affecting the Hydrogen Maser as a Frequency Standard." In D.N. Langenberg and B.N. Taylor, editors, "Precision Measurement and Fundamental Constants," *National Bureau of Standards Special Publication No. 343*. Washington, D.C.: National Bureau of Standards, 1971.
- Levy, H., II. "Normal Atmosphere: Large Radical and Formaldehyde Concentrations Predicted." *Science*, volume 173 (1971), pages 141-143.
- Litvak, M. "Masers and Optical Pumping." Presented at the National Radio Astronomy Observatory Symposium on Interstellar Molecules, Charlottesville, Virginia, October 1971.
- Lundquist, C.W., W.A. Deutschman, and R.E. Young, "Digital Processing Techniques Used in Determining Stellar Ultraviolet Magnitudes from OAO-Telescope Image Data." Presented at the Symposium on Processing of Telescopic Images, Quebec, October 1971.
- Lundquist, C.A., and G.E.O. Giacaglia. "Use of Altimetry Data in a Sampling Function Approach to the Geoid." Presented at the Sea Surface Topography Conference, Miami, Florida, October 1971.
- Marsden, B.G. "Annual Report of the Central Bureau for Astronomical Telegrams." *International Astronomical Union Information Bulletin No. 26*. (1971), pages 4-6.
- \_\_\_\_\_. "Letter to the Editor." *Monthly Notes of the Astronomical Society of Southern Africa*, volume 30 (1971), page 96.
- \_\_\_\_\_. "On Choosing a Comet." *Proceedings of the Cometary Science Working Group, Yerkes Observatory* (1971), pages 110-113.
- \_\_\_\_\_. "Report of Meeting of Commission 6." *Transactions of the International Astronomical Union*, volume 14B (1971), page 90.
- \_\_\_\_\_. "Reports on Progress in Astronomy: Comets in 1970." *Quarterly Journal of the Royal Astronomical Society*, volume 12 (1971), pages 244-273.
- \_\_\_\_\_. "Catalogue of Cometary Orbits." International Astronomical Union Central Bureau for Astronomical Telegrams, Cambridge, Massachusetts (1972), 70 pages.
- \_\_\_\_\_. "Evolution of Comets into Asteroids?" *International Astronomical Union Colloquium No. 12* (1972), pages 413-421.
- \_\_\_\_\_. "Frost, Edwin Brant." *Dictionary of Scientific Biography*, volume 5 (1972), page 199.
- \_\_\_\_\_. "Gould, Benjamin Apthorp." *Dictionary of Scientific Biography*, volume 5 (1972), pages 479-480.
- \_\_\_\_\_. "Letter to the Editor." *New Scientist*, volume 53 (1972), page 292.
- \_\_\_\_\_. "Letter to the Editor." *Sky and Telescope*, volume 43 (1972), page 224.
- \_\_\_\_\_. "Precision of Ephemerides for Space Missions." *International Astronomical Union Colloquium No. 12* (1972), pages 639-642.
- Marsden, B.G., T. Gehrels, and E. Roemer. "Minor Planets and Related Objects. VII. Asteroid 1971 FA." *Astronomical Journal*, volume 76 (1971), pages 607-608.
- Marsden, B.G., and Z. Sekanina. "Comets and Nongravitational Forces. IV." *Astronomical Journal*, volume 76 (1971), pages 1135-1151.
- Marvin, U.B. "Lunar Niobian Rutile." *Earth and Planetary Science Letters*, volume 11 (1971), pages 7-9.
- Marvin, U.B., and G.J. Taylor. "Indications of Lunar Peridotite." Presented at the 34th Annual Meeting of the Meteoritical Society, Tübingen, August 1971.

- Marvin, U.B., J.A. Wood, G.J. Taylor, J.B. Reid, Jr., B.N. Powell, J.S. Dickey, and J.F. Bower. "Relative Proportions and Probable Sources of Rock Fragments in the Apollo 12 Soil Samples." Pages 679-699, in *Proceedings of the 2nd Lunar Science Conference, Geochimica et Cosmochimica Acta*, volume 1. Cambridge, Massachusetts: MIT Press, 1971.
- Megrue, G.H. "Search for Gas-Rich Meteorites." Presented at the 34th Annual Meeting of the Meteoritical Society, Tübingen, August 1971.
- Megrue, G.H., and F. Steinbrunn. "Classification and Source of Lunar Soil; Clastic Rocks; and Individual Mineral, Rock, and Glass Fragments from Apollo 12 and 14 Samples as Determined by the Concentration Gradients of the Helium, Neon, and Argon Isotopes." Presented at the 3rd Lunar Science Conference, Houston, Texas, January 1972.
- Menzel, D.H. "The History of Astronomical Spectroscopy, 1: Qualitative Chemical Analysis and Radial Velocities." Presented at the International Conference on Education in and History of Modern Astronomy, New York, August 1971.
- \_\_\_\_\_. "The History of Astronomical Spectroscopy, 2: Quantitative Chemical Analysis and the Structure of the Solar Atmosphere." Presented at the International Conference on Education in and History of Modern Astronomy, New York, August 1971.
- Menzel, D.H., M. Minnaert, B. Levin, and B. Bell. "Report on Lunar Nomenclature by the Working Group of Commission 17 of the International Astronomical Union." *Space Science Reviews*, volume 12 (1971), pages 136-186.
- Mertz, L. "Analysis of Telescope Costs." Presented at the Orbiting Astronomical Observatory Symposium, Amherst, Massachusetts, August 1971.
- \_\_\_\_\_. "Fourier Reconstruction for the Rotation Collimator." Presented at the Symposium on Processing of Telescopic Images, Quebec, October 1971.
- Michael, W.H., Jr., D.L. Cain, G. Fjeldbo, G.F. Levy, J.G. Davies, M.D. Grossi, I.I. Shapiro, and G.L. Taylor. "Radio Science Experiments: The Viking Mars Orbiter and Lander." *Icarus*, volume 16 (1972), pages 57-73.
- Mohr, P.A. "The Ethiopian Triple-Rift Junction in Terms of Plate Tectonics." *Bulletin of the Geophysical Observatory of Addis Ababa*, number 13 (1971), pages 1-17.
- \_\_\_\_\_. "Smithsonian Geodimeter Survey." *Bulletin of the Geophysical Observatory of Addis Ababa*, number 13 (1971), page 121.
- \_\_\_\_\_. "Outline Tectonics of Ethiopia." *Earth Sciences*, volume 6 (1971), pages 447-458.
- \_\_\_\_\_. "Regional Significance of Volcanic Geochemistry in the Afar Triple Junction Ethiopia." *Bulletin of the Geological Society of America*, volume 83 (1972), pages 213-222.
- Moran, J. "Some Characteristics of an Operational System for Measuring UT-1 Using Very Long Baseline Interferometry (VLBI)." Presented at the 15th International COSPAR Meeting, Madrid, May 1972.
- Noyes, R.W. "models of the Quiet and Active Atmosphere from Harvard OSO Data." Pages 192-218, in C.J. Macris, editor, *Physics of the Solar Corona*. Dordrecht, Holland: D. Reidel Publishing Company, 1971.
- \_\_\_\_\_. "Solar Astronomy from Space." *Astronautics and Aeronautics*, volume 9 (1971), pages 18-24.
- \_\_\_\_\_. "Ultraviolet Studies of the Solar Atmosphere." *Annual Reviews of Astronomy and Astrophysics*, volume 9 (1971), pages 209-236.
- Nozawa, Y. "Engineering Aspects of Uvicon/Telescope System." Presented at the International Conference, Space Applications of Television Tubes, Paris, November 1971.
- Parsons, S. "Comparison of Telescope Magnitudes with Model Atmosphere Fluxes for A, F, and G Supergiants." Presented at the Orbiting Astronomical Observatory Symposium, Amherst, Massachusetts, August 1971.
- Payne-Gaposchkin, C. "Comparison of the Cepheid Variables in the Magellanic Clouds and the Galaxy." Pages 34-46, in A.B. Muller, editor, *The Magellanic Clouds*. Berlin: Springer-Verlag, 1971.



- Peytremann, E. "Theoretical Effect on Various Broadening Parameters on Ultraviolet Line Profiles." Presented at the Orbiting Astronomical Observatory Symposium, Amherst, Massachusetts, August 1971.
- Peytremann, E., and R.J. Davis. "Stellar Ultraviolet Colors and Interstellar Extinction." Presented at the Orbiting Astronomical Observatory Symposium, Amherst, Massachusetts, August 1971.
- Radford, H.E. "Remeasurement of the Rest Frequency of the 36-cm Radio Line of Methanol." *Astrophysical Journal*, volume 174 (1972), pages 207-208.
- Reeves, E.M., M.C.E. Huber, G.L. Withbroe, and R.W. Noyes. "Real-time Control of an Orbiting Solar Observatory." Pages 336-347, in F. Labuhn and R. Lüst, editors, *New Techniques in Space Astronomy, Proceedings of the International Astronomical Union Symposium No. 41*. Dordrecht, Holland: D. Reidel Publishing Company, 1971.
- Reid, J.B., Jr., G.J. Taylor, U.B. Marvin, and J.A. Wood. "Luna 16: Relative Proportions and Petrologic Significance of Particles in the Soil from Mare Fecunditatis." *Earth and Planetary Science Letters*, number 13 (1972), pages 286-298.
- Rybicki, G. "Relaxation Times in Strictly Disk Systems." *Astrophysics and Space Science*, volume 4, number 2 (1971).
- Salisbury, W., and D. Fernald. "Post-Occultation Reception of Lunar Ship Endeavour Radio Transmission." *Nature*, volume 234 (1971), page 95.
- Sando, K.M. "The Emission of Radiation Near 600 Å by Helium" *Molecular Physics*, volume 21 (1971), pages 439-447.
- Schild, R., and F. Chaffee. "Energy Distributions and Spectra of Orion B Stars." *Astrophysical Journal*, volume 169 (1971), pages 529-536.
- Schild, R., and J. Oke. "Energy Distributions and K Corrections for the Total Light from Giant Elliptical Galaxies." *Astrophysical Journal*, volume 169 (1971), pages 209-214.
- Simon, G.W., and R.W. Noyes. "Observations of the Coronal Network." Pages 663-666, in R. Howard, editor, *Solar Magnetic Fields, Proceedings of the International Astronomical Union Symposium No. 43*. Dordrecht, Holland: D. Reidel Publishing Company, 1971.
- \_\_\_\_\_. "Observed Heights of EUV Lines Formed in the Transition Zone and Corona." *Solar Physics*, volume 22 (1972), pages 450-458.
- Spannagel, G. "Reduction of  $^{37}\text{Ar}$  and  $^{39}\text{Ar}$  Counting Data." Presented at the 34th Annual Meeting of the Meteoritical Society, Tübingen, August 1971.
- Stephens, T.L., and A. Dalgarno. "Spontaneous Radiative Dissociation in Molecular Hydrogen." *Journal of Quantitative Spectroscopy and Radiative Transfer*, volume 12 (1972), pages 569-586.
- Strom, S., K. Strom, and J.N. Bregman. "The Blue Stars above the Turn-Off in M67: Horizontal Branch or Blue Stragglers?" *Publications of the Astronomical Society of the Pacific*, volume 83 (1971), pages 768-779.
- Taylor, G.J., and U.B. Marvin. "Dunite-Norite Lunar Microbreccia." *Meteoritics*, volume 6 (1971), pages 173-180.
- Taylor, G.J., U.B. Marvin, J.B. Reid, Jr., and J.A. Wood. "Noritic Fragments in the Apollo 14 and 12 Soils and the Origin of Oceanus Procellarum." Presented at the 3rd Lunar Science Conference, Houston, Texas, January 1972.
- Vernazza, J.E., and R.W. Noyes. "Inhomogeneous Structure of the Solar Chromosphere from Lyman Continuum Data." *Solar Physics*, volume 22 (1972), pages 358-374.
- Victor, G.A., and C. Laughlin. "Model Potential Calculation of the Electron Affinity of Lithium." *Chemical Physics Letters*, volume 14 (1972), page 74.
- Victor, G.A., and K. Sando. "Long-Range Interaction between Metastable Helium and Ground-State Helium." *Journal of Chemical Physics*, volume 55 (1971), pages 5421-5422.
- Weekes, T.C. "Time Variations in High-Energy Cosmic Rays." *Nature (Physical Science)*, volume 233 (1971), pages 129-130.



- Weekes, T.C., G.G. Fazio, H.F. Helmken, E. O'Mongain, and G. H. Rieke, "A Search for Discrete Sources of Cosmic Gamma Rays of Energy  $10^{11}$  to  $10^{12}$  eV." *Astrophysical Journal*, volume 174 (1972), pages 165-179.
- Weiffenbach, G.C. "An Observational Philosophy for Geos-C Satellite Altimetry." Presented at the Sea Surface Topography Conference, Miami, Florida, October 1971.
- Weisheit, J.C., and A. Dalgarno. "Spin-Orbit and Core Polarization Effects in Potassium." *Physical Review Letters*, volume 27 (1971), pages 701-703.
- Whipple, F.L. "Accumulation of Chondrules on Asteroids." Pages 251-256, in T. Gehrels, editor, *Physical Studies of Minor Planets*. Washington, D.C.: National Aeronautics and Space Administration, 1971.
- \_\_\_\_\_. "The Incentive of a Bold Hypothesis—Hyperbolic Meteors and Comets." Presented at the New York Academy of Sciences Symposium, New York, August 1971.
- \_\_\_\_\_. "On the Amount of Dust in the Asteroid Belt." Pages 389-393, in T. Gehrels, editor, *Physical Studies of Minor Planets*. Washington, D.C.: National Aeronautics and Space Administration, 1971.
- Wood, J.A. "Thermal History and Early Magmatism in the Moon." *Icarus*, volume 16 (1972), pages 229-240.
- Wood, J.A., A. Burlingame, D. Burnett, B. Doe, D. Gault, L. Haskin, H. Schnoes, D. Heymann, W. Melson, J. Papike, R. Tilling, and N. Toksoz. "Primal Igneous Activity in the Outer Layers of the Moon Generated by a 40 km Thick Feldspathic Crust." Presented at the 3rd Lunar Science Conference, Houston, Texas, January 1972.
- Wood, J.A., J.B. Reid, Jr., G.J. Taylor, and U.B. Marvin. "Petrological Character of the Luna 16 Sample from Mare Fecunditatis." *Meteoritics*, volume 6 (1971), pages 181-194.
- Wright, E.L., and A. Dalgarno. "Infrared Emissivities of  $H_2$  and HD." *Astrophysical Journal Letters*, volume 174 (1972), pages L49-L51.
- Wright, F.W. "Examples of Moon Sights to Obtain Time and Longitude." *Navigation*, volume 18 (1971), pages 292-297.
- Wright, F.W., and P.W. Hodge. "Further Studies of Variable Stars of the Large Magellanic Cloud." *Astronomical Journal*, volume 76 (1971), pages 1003-1165.

#### SPECIAL REPORTS

Through its Special Report series, the Observatory distributes catalogs of satellite observations, orbital data, and scientific papers before journal publication.

336. R.E. McCrosky, A. Posen, G. Schwartz, and C.-Y. Shao. "Lost City Meteorite: Its Recovery and a Comparison with Other Fireballs." 20 August 1971.
337. P.W. Hodge. "Color-Magnitude Diagrams of Five Faint Clusters of the Large Magellanic Cloud." 24 August 1971.
338. E. Chipman. "Analysis of Solar Ultraviolet Lines." 15 September 1971.
339. P.A. Mohr. "Ethiopian Tertiary Dike Swarms." 6 October 1971.
340. W.W. Hauck, Jr. "Foundations for Estimation by the Method of Least Squares." 27 December 1971.
341. J.L. Elliot. "Atmospheric Fluorescence as a Ground-based Method of Detecting Cosmic X-rays." 24 January 1972.
342. E.M. Gaposchkin. "Empirical Data and the Variance-Covariance Matrix for the 1969 Smithsonian Standard Earth (II)." 17 April 1972.
343. R.F.C. Vessot. "The Significance of the Redshift Rocket Probe Experiment to Theories of Gravitation." 1 May 1972.

## Smithsonian Tropical Research Institute

- Birkeland, Charles, and F.S. Chia. "Recruitment Risk, Growth, Age and Predation in two Populations of the Sand Dollars, *Dendraster excentricus*." *Journal of Experimental Marine Biology and Ecology*, volume 6 (1971), pages 265-278. [Not previously reported.]
- Birkeland, Charles, F.S. Chia, and R. Strathmann. "Development, Substratum Selection, Delay of Metamorphosis and Growth in the Seastar *Mediaster aequalis* Stimpson." *The Biological Bulletin*, volume 141 (1971), pages 99-108.
- Croat, Thomas B. "Gnetaceae. Flora of Panama, Part II, Family 2A." *Annals of the Missouri Botanical Garden*, volume 57, number 1 (1970), pages 1-4. [Not previously reported.]
- \_\_\_\_\_. "Studies in *Solidago* I: *S. graminifolia*-*gymnospermoides* Complex." *Annals of the Missouri Botanical Garden*, volume 57 (1970), pages 250-251. [Not previously reported.]
- \_\_\_\_\_. "History of Summit Garden, Canal Zone." *Taxon*, volume 20 (1971), pages 769-772.
- Croat, Thomas B., and D.M. Porter. "The Flowers of *Trattinnickia aspera* (Burseraceae) Discovered." *Annals of the Missouri Botanical Garden*, volume 57 (1970), pages 152-154. [Not previously reported.]
- Dressler, Robert L. "Una *Pleurothallis* extraña de Panamá." *Orquideología*, volume 5 (1970), pages 75-78. [Not previously reported.]
- \_\_\_\_\_. "Una *Gongora* Interesante del Ecuador." *Orquideología*, volume 6 (1971), pages 769-772.
- \_\_\_\_\_. "*Phymatidium panamense*, un Género "Brasileño" en Panamá." *Orquideología*, volume 6 (1971), pages 142-143.
- \_\_\_\_\_. "El Complejo de *Encyclia fragrans* en los países Andinos." *Orquideología*, volume 6 (1971), pages 195-203.
- \_\_\_\_\_. "Una *Teuscheria* nueva del Ecuador." *Orquideología*, volume 7 (1972), pages 3-6.
- \_\_\_\_\_. "*Epidendrum ibaguense*, Its Distribution and Variation." *Souvenir Program, 7th World Orchid Conference*, (April 1972), pages 87-91.
- Dressler, Robert L., and N.H. Williams. "An Overlooked Genus in the Oncidiinae." *American Orchid Society Bulletin*, volume 39 (1970), pages 988-994. [Not previously reported.]
- \_\_\_\_\_. "Dark Pollinia in Hummingbird-pollinated Orchids, or Do Hummingbirds Suffer from Strabismus?" *The American Naturalist*, volume 105 (1971), pages 80-83. [Not previously reported.]
- \_\_\_\_\_. "Dos Orquídeas nuevas de México Occidental." *Anales del Instituto de Biología, México, Serie Botánica*, 39 (1971), pages 117-120. [Not previously reported.]
- \_\_\_\_\_. "Local Polymorphism in *Brachyrhaphis episcopi* (Poeciliidae)." *Copeia*, 1971, pages 170-171. [Not previously reported.]
- Glynn, Peter W. "Growth of Algal Epiphytes on a Tropical Marine Isopod." *Journal of Experimental Marine Biology and Ecology*, volume 5 (1970), pages 88-93. [Not previously reported.]
- \_\_\_\_\_. "A Systematic Study of the Sphaeromatidae (Crustacea: Isopoda) of Isla Margarita, Venezuela, with Descriptions of Three New Species." *Memorias de la Sociedad de Ciencias Naturales La Salle*, volume 30, number 85 (1970), pages 5-48. [Not previously reported.]
- \_\_\_\_\_. "Rediscovery of *Paracerceis edithae* Boone (Isopoda, Sphaeromatidae) with Supplementary Notes on Morphology and Habitat." *Crustaceana*, supplement 3, 1972.



- Goreau, Thomas F., J.C. Lang, E.A. Graham, and P.D. Goreau. "Structure and Ecology of the Saipan Reefs in Relation to Predation by *Acanthaster planci* (Linnaeus)." *Bulletin of Marine Science*, volume 22, number 1 (1972), pages 113-152.
- Graham, Jeffrey B. "Temperature Tolerances of Some Closely Related Tropical Atlantic and Pacific Fish Species." *Science*, volume 172 (1971), pages 861-863. [Not previously reported.]
- \_\_\_\_\_. "Aerial Vision in Amphibious Fishes." *Fauna*, volume 3 (1971), pages 14-23.
- \_\_\_\_\_. "Low Temperature Acclimation and the Seasonal Temperature Sensitivity of Some Tropical Marine Fishes." *Physiological Zoology*, volume 45, number 1 (1972), pages 1-13.
- Graham, Jeffrey B., I. Rubinoff, and M.K. Hecht. "Temperature Physiology of the Sea Snake *Pelamis platurus*: An Index of its Colonization Potential in the Atlantic Ocean." *Proceedings of the National Academy of Sciences*, volume 68 (1971), pages 1360-1363. [Not previously reported.]
- Healey, Ian N., and J.M. Anderson. "Improvements in the Gelatin-embedding Technique for the Sectioning of Woodland Soils." *Pedobiologia*, volume 10 (1970), pages 108-121. [Not previously reported.]
- \_\_\_\_\_. "The Study of Production in Soft Bodies Micro-arthropods." *International Biological Programme Handbook*, volume 13 (1971), pages 203-329. [Not previously reported.]
- \_\_\_\_\_. "The Habitat, the Community, and the Niche: A Review of Concepts." Pages 307-342, in R.N. Fiennes, editor, *Biology of Nutrition*. New York: Pergamon Press, 1971. [Not previously reported.]
- Hespenheide, Henry A., and R.L. Dressler. "Una *Stelis* Notable de Panamá." *Orquideología*, volume 6 (1971), pages 21-23. [Not previously reported.]
- \_\_\_\_\_. "Food Preference and the Extent of Overlap in some Insectivorous Birds, with Special Reference to the Tyrannidae." *Ibis*, volume 113 (1971), pages 59-72. [Not previously reported.]
- Hladik, Annette. "Contribution a l'étude biologique d'une *Araliaceae* d'Amerique Tropicale: *Didymopanax morototoni*." *Adansonia*, series 2, volume 10, number 3 (1970), pages 383-407. [Not previously reported.]
- Hladik, Annette, C.M. Hladik, J. Bousset, P. Valdebouze, G. Viroben, and J. Delort-Laval. "Le regime alimentaire des primates de Barro-Colorado (Panama)." *Folia Primatologica*, volume 16 (1971), pages 85-122. [Not previously reported.]
- Hladik, Claude Marcel. "Les singes du nouveau monde." *Science et Nature*, number 102 (1970), pages 1-9. [Not previously reported.]
- Karr, James R. "Ecological, Behavioral, and Distributional Notes on Some Central Panama Birds." *The Condor*, volume 73, number 1 (1971), pages 107-111. [Not previously reported.]
- \_\_\_\_\_. "Structure of Avian Communities in Selective Panama and Illinois Habitats." *Ecological Monographs*, volume 41 (1971), pages 207-233.
- \_\_\_\_\_. "Wintering Kentucky Warblers (*Oporornis formosus*) and a Warning to Banders." *Bird-Banding*, volume 42 (1971), page 299.
- Karr, James R., and R.R. Roth. "Vegetation Structure and Avian Diversity in Several New World Areas." *The American Naturalist*, volume 105, number 945 (1971), pages 423-435.
- Kropach, Chaim. "Sea Snake (*Pelamis platurus*) Aggregations on Slicks in Panama." *Herpetologica*, volume 27, number 2 (1971), pages 131-135. [Not previously reported.]



- \_\_\_\_\_. "Another Color Variety of the Sea Snake *Pelamis platurus* from the Panama Bay." *Herpetologica*, volume 27, number 3 (1971), pages 326-327.
- Lang, Judith C. "Interspecific Aggression by Scleractinian Corals, I: The Rediscovery of *Scolymia cubensis* (Milne-Edwards and Haime)." *Bulletin of Marine Science*, volume 21 (1971), pages 952-959.
- Leigh, Egbert G., Jr. "Sex Ratio and Differential Mortality Between the Sexes." *The American Naturalist*, volume 104 (1970), pages 205-210. [Not previously reported.]
- \_\_\_\_\_. "Natural Selection and Mutability." *The American Naturalist*, volume 104 (1970), pages 301-305. [Not previously reported.]
- \_\_\_\_\_. *Adaptation and Diversity: Natural History and Mathematics of Evolution*. 288 pages. San Francisco: Freeman, Cooper & Co., 1971.
- MacArthur, R.H., J.M. Diamond, and J.R. Karr. "Density Compensation in Island Faunas." *Ecology*, volume 53, number 2 (1972), pages 330-342.
- McCosker, John E. "Faunal Investigations of Pacific and Caribbean Reef Fishes." *Research Reports* (Alpha Helix Research Program, 1969-1970, University of California, San Diego), page 38. [Not previously reported.]
- \_\_\_\_\_. "A Review of the Eel Genera *Leptenchelys* and *Muraenichthys*, with the Description of a New Genus, *Schismorhynchus*, and a New Species, *Muraenichthys chilensis*." *Pacific Science*, volume 24, number 4 (1970), pages 506-516. [Not previously reported.]
- \_\_\_\_\_. "A New Species of *Parapercis* (Pisces: Mugiloididae) from the Juan Fernández Islands." *Copeia*, volume 4 (1971), pages 682-686.
- McCosker, John E., and R.F. Nigrelli. "New Records of Lymphocystis Disease in Four Eastern Pacific Fish Species." *Journal of the Fisheries Research Board of Canada*, volume 28 (1971), pages 1809-1810.
- McCosker, John E., and R.H. Rosenblatt. "Eastern Pacific Snake-eels of the Genus *Callechelys* (Apodes: Ophichthidae)." *Transactions of the San Diego Society of Natural History*, volume 17, number 2 (1972), pages 15-24.
- Meyer, David L. "The Collagenuous Nature of Problematical Ligaments in Crinoids (Echinodermata)." *Marine Biology*, volume 9, number 3 (1971), pages 235-241. [Not previously reported.]
- \_\_\_\_\_. "Ctenantedon, A New Antedonid Crinoid Convergent with Comasterids." *Bulletin of Marine Science*, volume 22, number 1 (1972), pages 53-66.
- Morton, Eugene S. "Food and Migration Habits of the Eastern Kingbird in Panama." *The Auk*, volume 88, number 4 (1971), pages 925-926. [Not previously reported.]
- \_\_\_\_\_. "Nest Predation Affecting the Breeding Season of the Clay-Colored Robin, a Tropical Song Bird." *Science*, volume 141 (1971), pages 920-921. [Not previously reported.]
- Moynihan, Martin H. "Control, Suppression, Decay, Disappearance, and Replacement of Displays." *Journal of Theoretical Biology*, volume 29 (1970), pages 85-112. [Not previously reported.]
- \_\_\_\_\_. "Successes and Failures of Tropical Mammals and Birds." *The American Naturalist*, volume 105 (1971), pages 371-383.
- Oppenheimer, John R. "Mouthbreeding in Fishes." *Animal Behaviour*, volume 18, number 3 (1970), pages 493-503. [Not previously reported.]
- Ramírez, William B. "Die Bestäubung der Feigen durch Feigenwespen." *Umschau*, volume 15 (1971), page 571.
- Rand, A. Stanley, and E.E. Williams. "An Estimation of Redundancy and Information Content of Anole Dewlaps." *The American Naturalist*, volume 104 (1970), pages 99-103. [Not previously reported.]

- Reimer, Amada A. "Uptake and Utilization of Carbon C<sup>14</sup> Glycine by *Zoanthus* and its Coelenteric Bacteria." Pages 209-217, in Lenhoff, Muscatine, and Davis, editors, *Experimental Coelenterate Biology*. Honolulu: University of Hawaii Press, 1971. [Not previously reported.]
- \_\_\_\_\_. "Chemical Control of Feeding Behavior and Role of Glycine in the Nutrition of *Zoanthus* (Coelenterata, Zoanthidea)." *Comparative Biochemistry and Physiology*, volume 39A (1971), pages 743-759.
- \_\_\_\_\_. "Chemical Control of Feeding Behavior in *Palythoa* (Zoanthidea, Coelenterata)." *Comparative Biochemistry and Physiology*, volume 40A (1971), pages 19-38.
- \_\_\_\_\_. "Observations on the Relationships Between Several Species of Tropical Zoanthids (Zoanthidea, Coelenterata) and their Zooxanthellae." *Journal of Experimental Marine Biology and Ecology*, volume 7 (1971), pages 207-214.
- \_\_\_\_\_. "Feeding Behavior in the Zoanthids *Palythoa* and *Zoanthus*." *Pacific Science*, volume 25, number 4 (1971), pages 512-522.
- \_\_\_\_\_. "Specificity of Feeding Chemoreceptors in *Palythoa psammophilia* (Zoanthidea, Coelenterata)." *Comparative and General Pharmacology*, volume 2, number 8 (1971), pages 383-396.
- Robinson, Michael H., L.G. Abele, and B. Robinson. "Attack Autotomy: A Defense Against Predators." *Science*, volume 169 (1970), pages 300-301. [Not previously reported.]
- Robinson, Michael H., and H. Mirick. "The Predatory Behavior of *Nephila clavipes* (L)." *Psyche*, volume 78 (1971), pages 123-139.
- Robinson, Michael H., and B. Robinson. "The Stabilimentum of the Orb Web Spider, *Argiope argentata*: An Improbable Defense Against Predators." *Canadian Entomologist*, volume 102 (1970), pages 641-655. [Not previously reported.]
- \_\_\_\_\_. "Prey Caught by a Sample Population of the Spider *Argiope argentata* (Araneae: Araneidae) in Panama: A Year's Census Data." *Zoological Journal of the Linnean Society of London*, volume 49 (1970), pages 345-357. [Not previously reported.]
- \_\_\_\_\_. "The Predatory Behavior of the Ogre-faced Spider *Dinopis longipes* F. Cambridge (Araneae: Dinopidae)." *American Midland Naturalist*, volume 85 (1971), pages 85-96. [Not previously reported.]
- \_\_\_\_\_. "Animals that Mimic Parts of Plants." *Morris Arboretum Bulletin*, volume 21 (1970), pages 51-58. [Not previously reported.]
- \_\_\_\_\_. "Methods of Observing Spider Behaviour." *Bulletin of the British Arachnological Society*, volume 4 (1972), pages 58-59.
- Robinson, Michael H., B. Robinson, and W. Graney. "The Predatory Behaviour of the Nocturnal Orb-Web Spider *Eriophora fuliginea* (C.L. Koch)." *Actas del Primer Congreso Latinoamericano de Entomología*, 1972.
- Rosenblatt, R.H., and J.E. McCosker. "A Key to the Genera of the Ophichthid Eels, with Descriptions of Two New Genera and Three New Species from the Eastern Pacific." *Pacific Science*, volume 24, number 4 (1970), pages 495-505. [Not previously reported.]
- Rubinoff, Ira. "The Sea-Level Canal Controversy." *Biological Conservation*, volume 3, number 1 (1970), pages 33-36. [Not previously reported.]
- Rubinoff, Ira, and C. Kropach. "Differential Reactions of Atlantic and Pacific Predators to Sea-Snakes." *Nature*, volume 228 (1970), pages 1288-1290. [Not previously reported.]
- Rubinoff, Roberta W., and I. Rubinoff. "Geographic and Reproductive Isolation in Atlantic and Pacific Populations of Panamanian *Bathygobius*." *Evolution*, volume 25, number 1 (1971), pages 88-97. [Not previously reported.]



- Smith, Neal G. "On Change in Biological Communities." *Science*, volume 170 (1970), pages 312-313. [Not previously reported.]
- \_\_\_\_\_. "Biovarianism in Insular Populations of a Neotropical Passerine Bird." *American Midland Naturalist*, volume 86 (1971), pages 238-241. [Not previously reported.]
- \_\_\_\_\_. "Migration of the Day-flying Moth *Urania* in Central and South America." *Caribbean Journal of Science*, volume 12 (1971). [Not previously reported.]
- \_\_\_\_\_. "Reproductive Behavior." *Encyclopaedia Britannica*, 1972.
- Smith, W. John. "Displays and Message Assortment in *Sayornis* Species." *Behaviour*, volume 37 (1970), pages 85-112. [Not previously reported.]
- \_\_\_\_\_. "Song-like Displays in *Sayornis* Species." *Behaviour*, volume 37 (1970), pages 4-84. [Not previously reported.]
- Smith, W. John, and F. Vuilleumier. "Evolutionary Relationships of Some South American Ground Tyrants." *Bulletin of the Museum of Comparative Zoology*, volume 141, number 5 (1971), pages 181-232. [Not previously reported.]
- Smythe, Nicholas. "The Adaptive Value of the Social Organization of the Coati (*Nasua narica*)" *Journal of Mammalogy*, volume 51 (1970), pages 818-820. [Not previously reported.]
- \_\_\_\_\_. "On the Existence of 'Pursuit Invitation' Signals in Mammals." *The American Naturalist*, volume 104 (1970), pages 491-494. [Not previously reported.]
- Stephens, J.S., R. K. Johnson, G.S. Key, and J.E. McCosker. "The Comparative Ecology of Three Sympatric Species of California Blennies of the Genus *Hypsoblennius* Gill (Teleostomi, Blenniidae)." *Ecological Monographs*, volume 40 (1970), pages 213-233. [Not previously reported.]
- Thien, L.B., and R. L. Dressler. "Taxonomy of *Barkeria* Orchidaceae)." *Brittonia*, volume 22 (1970), pages 289-302. [Not previously reported.]
- Todd, Eric S. "Respiratory Control in the Longjaw Mudsucker *Gillichthys mirabilis*." *Comparative Biochemistry and Physiology*, volume 39, number 1A (1971), pages 147-163. [Not previously reported.]
- \_\_\_\_\_. "Hemoglobin Concentration in A New Air-breathing Fish." *Comparative Biochemistry and Physiology*, volume 41A, number 5 (1972).
- Topp, Robert W. "Behavior and Color Change of the Rudderfish, *Kyphosus elegans*, in the Gulf of Panama." *Copeia*, volume 4 (1970), pages 763-765. [Not previously reported.]
- Vermeij, Geerat J., and J.W. Porter. "Some Characteristics of the Dominant Intertidal Organisms in Pernambuco, Brazil." *Bulletin of Marine Science*, volume 21, number 2 (1971), pages 440-457.
- Wolda, Hindrik. "Variation in Growth Rate in the Landsnail *Cepaea nemoralis*." *Researches in Population Ecology*, volume 12 (1970), pages 185-204. [Not previously reported.]
- \_\_\_\_\_. "The Role of Food in the Dynamic of Populations of the Landsnail *Cepaea nemoralis*." *Oecologia*, volume 7 (1971), pages 361-381.
- \_\_\_\_\_. "Ecological Variation and its Implications for the Dynamics of Populations of the Landsnail *Cepaea nemoralis*." In P.J. den Boer and G.R. Gradwell, editors, *Dynamics of Populations*. "Proceedings of the Advanced Study Institute on Dynamics of Numbers in Populations, Oosterbeek, The Netherlands, 7-18 September 1970 (1971), pages 98-108.
- Zaret, Thomas M. "The Distribution, Diet, and Feeding Habits of the Atherinid Fish *Melaniris chagresi* in Gatun Lake, Panama Canal Zone." *Copeia*, volume 2 (1971), pages 341-343. [Not previously reported.]



- \_\_\_\_\_. "Predator-prey Interaction in a Tropical Lacustrine Ecosystem." *Ecology*, volume 53, number 2 (1972), pages 248-257.
- Zaret, Thomas M., and A.S. Rand. "Competition in Tropical Stream Fishes: Support for the Competitive Exclusion Principle." *Ecology*, volume 52 (1971), pages 336-342. [Not previously reported.]

### Radiation Biology Laboratory

- Brooks, C. "The Bilin-Apoprotein Bonds in Cryptomonad Phycoerythrin." Presented at the Annual Meeting of the Washington Area Section, American Society of Plant Physiologists, Beltsville, Maryland, 5 May 1972.
- Brooks, C., and E. Gantt. "A Comparative Study of Cryptophyte Phycoerythrin." Presented at the Annual Meeting of the Washington Area Section, American Society of Plant Physiologists, Beltsville, Maryland, 5 May 1972.
- Correll, D.L. "The Measurement of Phosphorus Metabolism in Natural Populations of Microorganisms." Presented at Symposium on Bioassay Techniques and Environmental Chemistry of the 162nd National American Chemical Society Convention, Washington, D.C. 14 September 1971.
- \_\_\_\_\_. "Early Products of Photophosphorylation in *Chlorella*." Presented to Biology Department, the Johns Hopkins University, Baltimore, Maryland, 14 March 1972.
- \_\_\_\_\_. "Phytochrome, Part I: History and Biological Responses." "Part II: Biochemical Properties." Presented to Biochemistry Department, Johns Hopkins University, Baltimore, Maryland, 13-14 March 1972.
- Edwards, M.R., and E. Gantt. "Phycobilisomes of the Thermophilic Blue-Green Alga *Synechococcus lividus*." *Journal of Cell Biology*, volume 50 (1971), pages 896-900.
- Gantt, E. "Micromorphology of the Periplast of *Chroomonas* sp. (Cryptophyceae)." *Journal of Phycology*, volume 7 (1971), pages 177-184.
- \_\_\_\_\_. "Photosynthetic Accessory Pigment Localization in Algae." Presented to the Department of Botany and Plant Pathology, Louisiana State University, Baton Rouge, Louisiana, 16 November 1971.
- \_\_\_\_\_. "Organization of a Phycobiliprotein Pigment Complex on Photosynthetic Membranes." Presented at the Botany Graduate Student Seminar Series, University of Texas at Austin, 11 February 1972.
- \_\_\_\_\_. "Organization of a Phycobiliprotein Pigment Complex on Photosynthetic Membranes." Presented at Seminar of the Washington Section of the American Society of Plant Physiologists, 18 February 1972.
- Gantt, E., and C.A. Lipschultz. "Phycobilisomes of *Prophyridium cruentum*. Isolation." Presented at the Washington Section of the American Society of Plant Physiologists, Beltsville, Maryland, 5 May 1972.
- Gettens, Rebecca. "Influence of Light Quality During Seed Development on Subsequent Germination." Presented at the Annual Meeting of the Washington Area Section of the American Society for Plant Physiologists, Beltsville, Maryland, 5 May 1972.
- Goldberg, B., and W.H. Klein. "Comparison of Normal Incident Solar Energy Measurements at Washington, D.C." *Solar Energy*, volume 13 (1971), pages 311-321.
- Harding, Roy W. "Inhibition of Photoinduced Carotenoid Biosynthesis in *Neurospora crassa* by inhibitors of Protein Synthesis." Presented at Annual Meeting of the Washington Area Section, American Society of Plant Physiologists, Beltsville, Maryland, 5 May 1972.

- Honeycutt, R.C., and M.M. Margulies. "Synthesis of Chloroplast Proteins in *Chlamydomonas*, I: Detection and Properties of Nascent Proteins." Presented at the Annual Meeting of the Washington Area Section, American Society of Plant Physiologists, Beltsville, Maryland, 5 May 1972.
- Klein, W.H. "Qualitative and Quantitative Aspects of Solar Radiation." Presented at Meeting on Photoalteration of Pesticides at National Academy of Science, Washington, D.C., 17 April 1972.
- Margulies, M.M. "Concerning the Sites of Synthesis of Proteins of Chloroplast Ribosomes and of Fraction I Proteins (ribulose-1, 5-diphosphate carboxylase)." *Biochemical Biophysical Research Communications*, volume 44 (1971), pages 539-545.
- 
- \_\_\_\_\_. "An Evaluation of The Evidence Concerning the Sites of Synthesis of Chloroplast Proteins." Lecture. University of Bari, Italy, 2 July 1971, and Biologisches Institut II, University of Freiburg, Freiburg im Breisgau, West Germany, 5 July 1971.
- 
- \_\_\_\_\_. "Effect of Cold-Storage of Bean Leaves on Photosynthetic Reactions of Isolated Chloroplasts. Inability to Donate Electrons to Photosystem II and Relation to Manganese Content." *Biochimica et Biophysica Acta*, volume 267 (1972), pages 96-103.
- Margulies, M.M., and R.C. Honeycutt. "Synthesis of Chloroplast Proteins in *Chlamydomonas*, II: Effect of Chloramphenicol and Cycloheximide on Synthesis of Ribosomal Proteins and Ribulose Diphosphate Carboxylase." Lecture. Annual Meeting, Washington Area Section, American Society of Plant Physiologists, Beltsville, Maryland, 5 May 1972.
- Shropshire, W., Jr. "Phototropic Bending Rate in *Phycomyces* as a Function of Average Growth Rate and Cell Radius." In "Biophysics of Cells and Organs," of *Proceedings of First European Biophysics Congress*, volume 5 (1971), pages 111-114.
- 
- \_\_\_\_\_. "Physical and Chemical Properties of Phytochrome. Action and Absorption Spectra of Phytochrome *in vivo*." Presented to NATO Advanced Study Institute on Phytochrome, Eretria, Greece, 2 September 1971.
- 
- \_\_\_\_\_. (1) "Phycomyces - An Opening Block Box." (2) "Theory and Techniques for Determining Action Spectra in Biological Systems." (3) "Phytochrome - A Photochromic Sensor." Visiting Scholar Lectures. Virginia Polytechnic Institute and State University, Blacksburg, Virginia, 3-5 April 1972.
- Shropshire, W., Jr., H. Lange, and H. Mohr. "An Analysis of Phytochrome-Mediated Anthocyanin Synthesis." Presented to American Society of Plant Physiologists, Pacific Grove, California, 23 August 1971.
- Stuckenrath, Robert. "C-14 vs Paleo-Indian." Presented at the Annual Meetings of the Canadian Archaeological Society, St. John's, Newfoundland, 24-27 February 1972.
- 
- \_\_\_\_\_. "So How Old Is It?" Presented at the Annual Meeting of Maryland Archaeological Society at Annapolis, Maryland, 8 April 1972.
- Weintraub, Robert L., and Verna R. Lawson. "Effects of Growth Regulators on Elongation of Excised Apices of Coleoptiles of Barley, Corn, Oats, Rye, and Wheat." Presented at the Annual Meeting of the Washington Area Section, American Society of Plant Physiologists, Beltsville, Maryland, 5 May 1972.

### National Zoological Park

- Buechner, H.K. "Ecosystem Level of Organization." *Hierarchically Organized Systems in Theory and Practice* (1971), pages 45-58.



- \_\_\_\_\_. "Radiotelemetry for Research on Large Land Mammals." *International Telemetering Conference Proceedings*, volume 7 (1971), pages 387-392.
- \_\_\_\_\_. "Lek Behavior in the Uganda Kob." *Zoonoos*, volume 45, number 2 (1972), pages 10-14.
- Buechner, H.K., F.C. Craighead, Jr., J.J. Craighead, and C.E. Cote. "Satellites for Research on Free-Roaming Animals." *Bioscience*, volume 21, number 24 (1971), pages 1201-1205.
- Collins, L.R., and J.F. Eisenberg. "The Behavior and Breeding of Pacaranas *Dinomys branickii* in Captivity." *International Zoo Yearbook*, volume 12 (1972), pages 108-114.
- Cook, James E., Embert H. Coles, and F.H. Garner. "Detecting Leptospire in Formalin-fixed Hamster Tissues by Fluorescent Antibody Techniques." *The American Journal of Veterinary Research*, volume 33, number 1 (1972), pages 277-282.
- Egoscue, H.J. "A Laboratory Colony of the Polynesian Rat (*Rattus exulans*)." *Journal of Mammalogy*, volume 51, number 2 (1970), pages 261-266.
- \_\_\_\_\_. "Nonagouti' A New Recessive Color Mutation in Deer Mice." *Journal of Heredity*, volume 62, number 2 (1971), page 372.
- \_\_\_\_\_. "Breeding the Long-tailed Pouched Rat (*Beamys hindei*) in Captivity." *Journal of Mammalogy*, volume 53, number 2 (1972), pages 296-302.
- Egoscue, H.J., J.G. Bittmann, and J.A. Petrovich. "Some Fecundity and Longevity Records for Captive Small Mammals." *Journal of Mammalogy*, volume 51, number 3 (1970), pages 622-623.
- Eisenberg, J.R., and P. Leyhausen. "The Phylogenesis of Predatory Behavior." *Zeitschrift für Tierpsychologie*, volume 30 (1972), pages 59-93.
- Eisenberg, J.F., and M. Lockhart. "An Ecological Reconnaissance of Wilpattu National Park, Ceylon." *Smithsonian Contributions to Zoology*, number 101 (1972), pages 1-118, 76 figures, 16 tables.
- Eisenberg, J.F., N. Muckenhiirn, and R. Rudran. "The Relation between Ecology and Social Structure in Primates." *Science*, volume 176 (1972), pages 863-874.
- Gray, C.W. "Immunization of the Exotic Felidae for Panleukopenia." *Journal of Zoo Animal Medicine*, volume 3, number 1 (1972), pages 14-15.
- \_\_\_\_\_. "Lead Toxicosis." *Journal of Zoo Animal Medicine*, volume 3, number 1 (1972), page 20.
- \_\_\_\_\_. "Conjunctivitis in the Jungle Cat (*Felis chaus*)." *Journal of Zoo Animal Medicine*, volume 3, number 1 (1972), page 26.
- Jainudeen, M.R., J.F. Eisenberg, and N. Tilakeratne. "Estrous Cycle of the Asiatic Elephant (*Elephas maximus*) in Captivity." *Journal of Reproduction and Fertility*, volume 27, pages 321-328.
- Kleiman, D.G. "The Courtship and Copulatory Behavior of the Green Acouchi (*Myoprocta pratti*)." *Zeitschrift für Tierpsychologie*, volume 29 (1971), pages 259-278.
- Migaki, G., H.R. Seibold, R.H. Wolf, and F.M. Garner. "Pathologic Conditions in the Patas Monkey." *The Journal of the American Veterinary Medical Association*, volume 159, number 5 (1971), pages 549-556.
- Morrison, J.A., and H.K. Buechner. "Reproductive Phenomena During the Postpartum Preconception Interval in the Uganda Kob." *Journal of Reproduction and Fertility*, volume 26, pages 307-317.
- Sauer, R.M., and B.C. Zook. "Selenium-Vitamin E Deficiency at the National Zoological Park." *Journal of Zoo Animal Medicine*, volume 3 (1972), pages 34-36.
- Stroman, H.R., and L.M. Slaughter. "The Care and Breeding of Pigmy Hippos in Captivity." *International Zoo Yearbook*, volume 12 (1972), pages 126-131.



- Wemmer, C. "Scent-Marking and Anointing: Behavioral Parallelism in Mammals." *American Zoologist*, volume 11 (1971), page 623.
- Xanten, W.A., Jr. "Gestation Period in the Bongo." *Journal of Mammalogy*, volume 52, number 1 (1972), page 232.
- Zook, B.C. "Biologic Effects of Atmospheric Pollutants. Lead: Airborne Lead in Perspective." *National Academy of Sciences* (1972), page 185.
- Zook, B.C., L. Kopito, J.L. Carpenter, D.V. Cramer, and H. Schwachman. "Lead Poisoning in Dogs: Analysis of Blood, Urine, Hair, and Liver for Lead," *American Journal of Veterinary Research*, volume 33, number 5 (1972), pages 903-909.
- Zook, B.C., J.L. Carpenter, R.M. Roberts. "Lead Poisoning in Dogs: Occurrence, Source, Clinical Pathology, and Electroencephalography." *American Journal of Veterinary Research*, volume 33, number 5 (1972), pages 891-902.

## Office of Environmental Sciences

### OFFICE OF THE DIRECTOR

- Harinasuta, C., S. Sornmani, V. Kitikoon, C.R. Schneider, and O. Pathammavong. "Infection of Aquatic Hydrobiid Snails and Animals with *Schistosoma japonicum*-like parasites from Khong Island, Southern Laos." *Transactions of the Royal Society of Tropical Medicine and Hygiene*, volume 66 (1972), pages 184-185.

### ECOLOGY PROGRAM

- Boyes, J.W., L.V. Knutson, and Janny M. van Brink. "Further Cytotaxonomic Studies of Scimyziidae, with Description of a New Species, *Dichetophora boyesi* Steyskal (Diptera: Acalyptratae)." *Genetica*, volume 43 (August 1972), pages 200-234.
- Jenkins, D.W. "Global Biological Monitoring." Pages 351-370, in *Man's Impact on Terrestrial and Oceanic Ecosystems*. Cambridge: Massachusetts Institute of Technology Press, 1971.
- \_\_\_\_\_. "Remote Sensing of Environment and Ecology of Developing Countries." Pages 34-48, in *Proceedings Symposium on Potential Application of Remote Sensing to Economic Development in Developing Countries, Smithsonian Institution, November 19-20, 1970*. 1971.
- \_\_\_\_\_. "Agriculture and Forestry—Identification, Vigor and Disease." In "Proceedings, Remote Sensing of the Chesapeake Bay, April 5-7, 1971." *National Space and Aeronautics Administration, Special Publication*, number 294 (1971), pages 91-102.
- \_\_\_\_\_. "International Ecological Program of the Smithsonian Institution" In *Proceedings Symposium on Ecology and Developing Countries, Stockholm, April 27-28, 1971*. 5 pages. 1971.
- Jenkins, D.W., and R. Poole. "Taking Ecology Overseas." *Journal of Environmental Education*, volume 3, number 2 (1971), pages 24-26.
- Knutson, L.V. "Description of the Female of *Pherbecta limenitis* Steyskal (Diptera: Sciomyziidae), with Notes on Biology, Immature Stages, and Distribution." *Entomology News*, volume 83 (1972) pages 15-21.
- Knutson, L.V., and C.O. Berg. "The Malacophagous Flies of Norway (Diptera: Sciomyziidae)." In Knutson, L.V. and C.O. Bert, "The Malacophagous Flies of Norway (Diptera; Sciomyziidae)." *Norsk ent. Tidsskr.* volume 18, pages 119-134.

Knutson, L.V., and Oliver S. Flint, Jr. "Pupae of Empididae in Pupal Cocoons of Rhyacophilidae and Glossosomatidae (Diptera: Trichoptera)." *Proceedings of the Entomological Society of Washington*, volume 73, number 3 (September 1971), pages 314-320.

#### OCEANOGRAPHY AND LIMNOLOGY PROGRAM

Higgins, R.P., contributing author. In N.C. Hulings and J.S. Gray, editors, "A Manual for the Study of Meiofauna." *Smithsonian Contributions to Zoology*, number 78 (1971). [Not previously reported.]

\_\_\_\_\_. "A Historical Overview of Kinorhynch Research." In N.C. Hulings, editor, "Proceedings of the First International Conference on Meiofauna." *Smithsonian Contributions to Zoology*. Number 76 (1971), pages 25-31.

\_\_\_\_\_. "The Kinorhyncha as Bibliocryptozorns." Lecture. University of Pittsburg, 15 December 1972.

\_\_\_\_\_. "The Mediterranean Sea: Aristotle was Right." Lecture. University of Massachusetts, 1 March 1972.

\_\_\_\_\_. "The Lesser-known Invertebrates." Lecture. Clarke University, 20 April 1972.

#### SMITHSONIAN OCEANOGRAPHIC SORTING CENTER

Fehlmann, H.F. "USARP Activities at the Smithsonian Oceanographic Sorting Center." *Antarctic Journal of the United States*, volume 6, number 6 (1972), page 251.

Houbrick, R.S. "Some Aspects of the Anatomy, Reproduction, and Early Development of *Cerithium nodulosum* (Bruguiere)." *Pacific Science*, volume 25, number 4 (1972), pages 560-565.

Landrum, B.J. "Documentation of U.S. Antarctica Collections." *Antarctic Journal of the United States*, volume 6, number 6 (1972), pages 251-252.

Simkin, Tom. "Rocks from the Antarctic Seas." *Antarctic Journal of the United States*, volume 6, number 6 (1972), page 251.

#### CHESAPEAKE BAY CENTER FOR ENVIRONMENTAL STUDIES

White, C.M., W.B. Emison, and Francis S. L. Williamson. "Dynamics of Raptor Populations on Amchitka Island, Alaska." *BioScience*, volume 21 (1971), pages 623-627.

Williamson, Francis S.L. "Biology and the Chesapeake Bay." Presented at the Symposium on Science and the Environment, January 1972.

\_\_\_\_\_. *The Ecology of Poxvirus Disease in the Starling, Sturnus vulgaris L.* Baltimore: The Johns Hopkins University Press, 1971.

Williamson, Francis S.L., and W.B. Emison, "Variation in the Timing of Breeding and Molt of the Lapland longspur (*Calcarius lapponicus*) in Alaska, with Relation to Differences in Latitude." *BioScience*, volume 21 (1971) pages 701-707.

Williamson, Francis S.L., W.B. Emison, and C.M. White. "Studies of the Avifauna on Amchitka Island, Alaska, July 1970-June 1971." *United States Atomic Energy Commission Report Battele Memorial Institute*, number 171-131 (1971).

\_\_\_\_\_. "Geographical Affinities and Migrations of the Avifauna on Amchitka Island, Alaska." *BioScience*, volume 21 (1971), pages 627-631.

Williamson, Francis S.L., and J. Kevin Sullivan. *Road River Estuary: Interdisciplinary Research on a Watershed-Estuarine System of the Chesapeake Bay*. Volume 1 and 2 (September 1971). [Multilith.]

#### CENTER FOR SHORT-LIVED PHENOMENA

(Reports issued by the Center)

*Annual Report 1971*. 310 pages. May 1972.

Cameron, Winifred Sawtell. "Comparative Analyses of Observations of Lunar Transient Phenomena." October 1971.

Citron, Robert. "Outline for a Feasibility Study for the Establishment of an International Natural Disaster Warning System." Prepared for the Office of Science and Technology of the United Nations, July 1971.

Elizalde, Manuel, Jr. "The Tasaday Forest People". A Data Paper on a Newly Discovered Food Gathering and Stone Tool Using Manobo Group in the Mountains of South Cotabato, Mindanao, Phillippines, July 1971.

Fourcardt, N., and H. Viramonte. "Present Situation of Volcanic Activity in Deception Islands- South Chetland Island, Antarctica." 8 pages. May 1972.

Heroun, T. "Neragongo Volcanic Activity." 7 pages. February 1972.

Redhead, R.E. "Army Worm (*Spodoptera exempta*) Predation by Yellow-Necked Spurfowl (*Pternistis leucoscepus*) in the Longido Game Controlled Area." July 1971.

Rittman, Alfredo. "The Mt. Etna Volcanic Eruption of 1971." The Volcanology Institute of the University of Catania and the International Institute of Volcanology of the National Research Council. Event Chronology: 23 April-14 June 1971. July 1971.

Schoen, Ivan L. "Report of the Emergency Trip Made by the West Indies Mission to the Akoerio Indians, June 1971." July 1971.

Shepherd, J.B., H. Sigurdsson, J.F. Tomblin, and W.P. Aspinall. "The Soufriere Volcanic Eruption-St. Vicents Island Carribean Sea." 17 pages. 1972.

Smithsonian Institution. "Natural Disaster Research Centers and Warning Systems: A Preliminary Survey." July 1971.

Tomblin, J.F., and H. Sigurdsson. "The Soufriere Volcanic Eruption-St. Vicent Island Caribbean Sea. Event Chronology: 1-15 November 1971." 20 December 1971.

#### SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Foster, W.R., and G.E. Clipper. "A Special Research Center-Smithsonian Science Information Exchange Builds International Bridges of Information". *A Current Bibliography on African Affairs*, series 2, volume 5 (1972), pages 49-54.

Foster, W.R., and F.J. Kreysa. "SSIE: An Interdisciplinary Resource for Teachers." *Journal of College Science Teaching* (December 1971).

Hersey, D.F., W.R. Foster, E.Q. Stalder, and W.T. Carlson. "Free Test Word Retrieval and Scientist Indexing: Performance Profiles and Costs." *The Journal of Documentation*, volume 27, number 3 (September 1971), pages 167-183.

#### Office of Assistant Secretary for History and Art

Grove, Richard. "Understanding Your Art Museum." *Art Education*, volume 24, number 9 (December 1971), pages 18-21.



\_\_\_\_\_. "Final Address." 1971 Shakespeare Seminars, McMaster University in association with the Stratford Festival, Stratford, Ontario, 6 August 1971.

## The National Museum of History and Technology

### OFFICE OF THE DIRECTOR

Bedini, Silvio A. "The Tube for Long Vision: An Iconographic History of the Telescope in Its First Fifty Years." *Physis*, volume 13, fascicle 2 (1971), pages 147-204.

\_\_\_\_\_. "Benjamin Banneker and the Survey of the District of Columbia." *Records of the Columbia Historical Society of Washington, 1969-1970* (May 1972), pages 7-30.

\_\_\_\_\_. *The Life of Benjamin Banneker*. 434 pages. New York: Charles Scribner's Sons 1972.

Boorstin, Daniel J. *The Image*. Reprint. 315 pages. New York: Atheneum, 1971.

\_\_\_\_\_. "Democracy and the Sense of Place." Lecture. U.S. Capitol Historical Society, Washington, D.C., 15 September 1971.

\_\_\_\_\_. "Democracy and the Sense of Place." *The Capitol Dome* (1971), pages 2-3.

\_\_\_\_\_. "The New Segregation." *Life* (10 September 1971), pages 36-69.

\_\_\_\_\_. "Education and National Power." Lecture. The National War College, Washington, D.C., 10 September 1971.

\_\_\_\_\_. "What Historians Don't Talk About." Lecture. Indiana University, Bloomington, Indiana, 25 October 1971.

\_\_\_\_\_. "Une leçon pour la France: Les Américains en ont assez de leur TV." *Science & Vie*, volume 120, number 71 (November 1971), pages 100-104.

\_\_\_\_\_. "Technology and Democracy." Lecture. Auburn University, Auburn, Alabama, 11 November 1971.

\_\_\_\_\_. "Divergent Views in American History." Broadcast. BBC, London, England, 3 January 1972.

\_\_\_\_\_. "Technology and Democracy." Lecture. Wabash College, Crawfordsville, Indiana, 9 February 1972.

\_\_\_\_\_. "The Exploring Spirit." *New Worlds* (March 1972). pages 17, 25.

\_\_\_\_\_. "Frontiers of Ignorance." The William W. Cook Lectures on American Institutions, The University of Michigan, Ann Arbor, Michigan. Lecture 1: "The Idea of Negative Discovery," 3 April 1972; Lecture 2: "Illusions of Historical Knowledge," 4 April 1972; Lecture 3: "Prisons of History," 5 April 1972; Lecture 4: "Temptations of the Well-Informed," 6 April 1972; Lecture 5: "The Omnipresent Present," 7 April 1972.

\_\_\_\_\_. "Are We Talking Too Much." Syndicated Article. Field Enterprises, Inc., April 1972.

\_\_\_\_\_. "A Look at American Politics." Address. The Washington Journalism Center, Washington, D.C., 12 April 1972.

\_\_\_\_\_. "Revolution: Future Prospects." Lecture. University of Missouri, St. Louis, Missouri, 21 April 1972.

\_\_\_\_\_. "The Future—What's up for America?" Address. Republican Governors Association meeting, White Sulphur Springs, West Virginia, 2 May 1972.

\_\_\_\_\_. "The American Social Order and Public Policy." Address. Brookings Institution, Washington, D.C., 16 May 1972.

- \_\_\_\_\_. "It's Dangerous to Talk about 'National Sickness'." *U.S. News and World Report* (29 May 1972), pages 18-20.
- Gorr, Louis F. "The Rise and Fall of the Foxall-Columbia Foundry, Georgetown: A Profile of an Early American Defense Contractor." Paper delivered to the Columbia Historical Society, April 1972.
- \_\_\_\_\_. "Is the Scientist Responsible?" *Bulletin of the Atomic Scientists*. (June 1971), pages 36-37.
- \_\_\_\_\_. "Technology and Humanism." *The Humanist* (July/August, 1971), pages 39-42.
- \_\_\_\_\_. "The Maximum Automatic Machine Gun." Exhibit brochure. United States Marine Corps Museum, Quantico. Virginia, Fall, 1971.
- Skramstad, Harold K. "American Things: A Neglected Material Culture." *American Studies*, volume 10 (Spring 1972), pages 11-22.
- \_\_\_\_\_. "The Anatomy of Washington: Contours of Capital City Growth." Lecture. Woodrow Wilson School, Princeton University, 14 March 1972.
- \_\_\_\_\_. "Historical Archeology and its Role in Historic Preservation." Lecture. Tenth Annual National Trust Woodlawn Conference for Historic Preservation, 21 February 1972.
- \_\_\_\_\_. "Material Aspects of American Civilization." Graduate Seminar. Smithsonian American Studies Program, Fall 1971.
- \_\_\_\_\_. "American Technology and its Cultural Impact." Graduate Seminar. Smithsonian American Studies Program, Fall 1971.
- \_\_\_\_\_. "American Technology and its Cultural Impact." Graduate Seminar. Smithsonian American Studies Program, Spring 1972.
- \_\_\_\_\_. "Dialogue on Preservation in Washington." Session at First Annual Washington Preservation Conference, 14 April 1972.

#### DEPARTMENT OF APPLIED ARTS

- Adrosko, Rita J. "American Textiles, 1750-1850." Lecture. School of Architecture, Columbia University. March 1972.
- \_\_\_\_\_. "Early European and American Handlooms." Lecture. Handweavers' Guild of Westchester. March 1972.
- \_\_\_\_\_. "Textiles from the Smithsonian's Collection." *Handweaver & Craftsman*, volume 23, number 2 (March/April 1972) pages 20-22, 4 illustrations.
- Bruns, Franklin R., Jr. "Visiting the Smithsonian: Color Slides Available." *Scott Monthly Journal*, volume 52, number 10 (January 1972) pages 4-5, 31.
- \_\_\_\_\_. "The Honorable Discharge Emblem Commemorative of 1946." *American Philatelic Congress Book* (1971), pages 11-25.
- \_\_\_\_\_. "Visiting the Smithsonian: The National Parks." *Scott Monthly Journal*, volume 53, number 5 (July 1972), pages 18-19, 38, 43.
- Clain-Stefanelli, Elvira. "Artistic Evolution of Medals in the United States." *National Sculpture Review*, (Fall 1971), pages 14-17, illustrated.
- \_\_\_\_\_. "Künstler U.S.A." In *Katalog XIV. Inter Medaille Köln 1971*. Cologne, 1971.
- \_\_\_\_\_. "Deutsche Beiträge zur Künstlerischen Entwicklung der Amerikanischen Medaille." [German Contributions to the Art of the Medal in the United States] Lecture. F.I.D.E.M. (Fédération Internationale de la Médaille) Congress, Cologne, Germany, 15 September 1971.
- \_\_\_\_\_. "L'Italia e gl'Italiani nelle loro monete". ["Italy and the Italians as Reflected in Their Coinages"]. Lecture. Italian Society of Washington, Washington, D.C., 18 November 1971.

- Clain-Stefanelli, V. "Deutsche Beiträge zur Technischen Entwicklung der Amerikanischen Medaille und Münze," ["German Contributions to Medal- and Coin-manufacturing Techniques in the United States"]. Invitational lecture. F.I.D.E.M. Congress, Cologne, Germany, 17 September 1971.
- Cooper, Grace R. *The Copp Family Textiles*. 65 pages, 68 illustrations. Washington, D.C.: Smithsonian Institution Press, 1971.
- \_\_\_\_\_. "Handweaving and the Powerloom in 18th Century America." *Handweaver & Craftsman*, volume 22, number 9 (Fall 1971), pages 5-9, 6 figures.
- Haberstich, David E. "The Smithsonian's History of Photography Collection." Lecture. National Institutes of Health Camera Club, 21 December 1971.
- Harris, Elizabeth M. "The American Common Press." *The Journal of the Printing Historical Society*, volume 7 (1971).
- Marzio, Peter C. "Carpentry in the Southern Colonies during the Eighteenth Century with Emphasis on Maryland and Virginia." *Winterthur Portfolio*, volume 7 (1972), pages 229-250.
- \_\_\_\_\_. "Early American Prints as a News Medium." Lecture. Library of Congress Print Conference, June, 1972.
- Norby, Reidar. "Unique Swedish Printing Technique." *Scandinavian Scribe*, volume 7 number 7 (July 1971), pages 123-124, 2 figures.
- \_\_\_\_\_. "Postal Economy of the Northlands for 1970." *Scandinavian Scribe*, volume 7, number 7 (July 1971), pages 135-137.
- \_\_\_\_\_. "Postal Stationery." *Scott Monthly Journal*, volume 52, number 8 (November 1971), pages 18-19, 4 figures.
- \_\_\_\_\_. "Postal Look at Scandinavia, 1969, 1970." *Scandinavian Scribe*, volume 7, number 9 (Oct/Nov. 1971), page 178.
- \_\_\_\_\_. "Five Nordic Philatelic Centenaries in 1972." *Scandinavian Scribe*, volume 8, number 2 (February 1972), pages 19-21, 10 figures.
- \_\_\_\_\_. "New Counterfeit of Norway 3 Skill 1863?" *Scandinavian Scribe*, volume 8, number 2 (February 1972), pages 27-28, 8 figures.
- \_\_\_\_\_. "Off-set—What Is It, Really?" *Scandinavian Scribe*, volume 8 number 3 (March 1972), pages 35-37, 2 figures.
- \_\_\_\_\_. *Watermarks - What Are They, Really?* 12 pages, 11 illus. Washington, D.C.: Scandinavian Scribe, 1972.
- \_\_\_\_\_. "A Three-strip Returns Home." *Scandinavian Scribe*, volume 8, number 6 (June 1972), pages 88-89, 3 figures.
- \_\_\_\_\_. "Scandinavian Varieties." *Scandinavian Scribe*, volume 8 (1972), pages 14, 46, 60, 75, 94, 6 figures.
- \_\_\_\_\_. "Philatelic Gems of the Smithsonian Collections." Lecture. CIA Stamp Club, June 1971.
- \_\_\_\_\_. "Smithsonian's Special Exhibition - Stamps and Posts of Scandinavia". Lecture. General Directorate of Post and Telegraph of Denmark, Copenhagen, Denmark, August 1971.
- \_\_\_\_\_. "Smithsonian's Special Exhibition - Stamps and Posts of Scandinavia." Lecture. Royal Postal Administration of Sweden, Stockholm, Sweden, August 1971.
- \_\_\_\_\_. "Preparations for Philatelic Exhibitions." Lecture. Washington Chapter of Scandinavian Collectors Club, February 1972.
- Ostroff, Eugene. "Foreword." In Edward M. Estabrooke, *The Ferreotype and How to Make It*. Revised edition. Hastings-on-the Hudson, New York: Morgan and Morgan, March 1972. [First edition 1872.]
- \_\_\_\_\_. "Preservation and Conservation of Photographs and Related Documents." Seminar. National Museum of History and Technology, 5, 6, 7 March 1972.



- Roney, Ellen E. "The Photograph Collection." *Scott Monthly Journal*, volume 53, number 2 (April 1972), page 5.
- Roney, Ellen E., Reidar Norby, and Carl H. Scheele. "Smithsonian Philatelic Booklist." *S.P.A. Journal*, volumes 33, 34 (1971).
- Scheele, Carl H. "The Burden of the Far West: U.S. Mails and the Turner Thesis." *The American Philatelist*, volume 85, number 7 (September 1971), pages 597-604.
- \_\_\_\_\_. "The Western Post Office under Buchanan and Lincoln." *The American Philatelist*, volume 85, number 9 (September 1971), pages 781-791.
- \_\_\_\_\_. "Visiting the Smithsonian: The Headsville Post Office." *Scott Monthly Journal*, volume 52, number 6 (September 1971), pages 10-11.
- \_\_\_\_\_. "Philatelic Rarities in the National Postage Stamp Collection." Lecture. Collectors Club of Washington, D.C., 7 June 1972.
- Turner, Craig J. "The Early United States Revenues." *The New Orleans Collector* (November-December 1971), pages 112, 113, 114, 115.
- \_\_\_\_\_. "The Last Railway Mail Car." *The American Philatelist*, volume 85, number 2 (February 1972), pages 127, 128, 129, 130, 131.
- Vann, Lois M. "Natural Fibers, Processing and Spinning." Lecture. Department of Home Economics, Howard University, November 1971.

#### DEPARTMENT OF CULTURAL HISTORY

- Ahlborn, Richard E. "Spanish New Mexico, 1775-1875." Lecture. Cedar Crest College, Allentown, Pennsylvania, March 1972.
- \_\_\_\_\_. "Objects as Historic Documents." Lecture. American University, Washington, D.C., November, 1971.
- \_\_\_\_\_. "Spanish New Mexican Material Culture." Lecture. American Studies Program at the Smithsonian, October, 1971.
- \_\_\_\_\_. "Space and Form in Spanish New Mexican Architecture." Lecture. D.C. Chapter of the Society for Architectural Historians, April, 1972.
- \_\_\_\_\_. "Spanish New Mexican Folk Art." Lecture. Cooperstown, New York, July, 1971.
- \_\_\_\_\_. "Spanish American Arts, Old Mexico to New." Lecture. Shelburne Village, Vermont, August, 1971.
- \_\_\_\_\_. "Spanish-American Material Culture, 1600-1900: Spain; Mexican Colonial Architecture; Spanish Colonial Arts: New Mexican Arts." Lectures (4). University of Vermont Course at Shelburne, August, 1972.
- Fesperman, John. "Three Snetzler Organs in the U.S." Volume 2 of *The Organ Yearbook*, London (1972).
- Kidwell, Claudia B. "Women's 19th Century Dress—Evolution and Inspiration." Daughters of the American Revolution, Washington, D.C. 19 February 1972.
- \_\_\_\_\_. "Care and Maintenance of Collections: Textiles and Costume." Lecture. National Trust for Historic Preservation Workshop: "What to do before the Conservator is Hired." 13 May 1972.
- \_\_\_\_\_. Lectures: (1) "17th Century American Costume as Listed in Maryland Inventories." November 1971. (2) "Introduction to 18th Century Costumes." 26 January 1972. (3) "18th Century Costume Construction Techniques." February 1972. (4) "18th Century Costumes in Paintings." 17 May 1972. The Costume Study Group National Museum of History and Technology.
- Murray, Anne Wood. "The Copp Family Silhouettes." *Antiques*, volume 101 (March 1972), pages 506-509, 11 figures.
- Odell, J. Scott. "Folk Instruments." *Arts in Virginia*, volume 12, number 1 (Fall 1971).

- Roth, Rodris. "Pieces of History: Relic Furniture of the Nineteenth Century." *Antiques*, volume 101 (May 1972), pages 874-878, 8 figures.
- \_\_\_\_\_. "Furnishing the Victorian House 1840-1860." Illustrated lecture. Decorative Arts Society, City Art Museum of St. Louis, St. Louis, Missouri, 9 December 1971.
- Watkins, C. Malcolm. "Artifacts from the Sites of Three Nineteenth Century Houses and Ditches at Darien Bluff, Georgia." *University of Georgia Laboratory of Archaeology Series Report*, number 9.
- \_\_\_\_\_. "Albert Wells and the Genesis of Old Sturbridge Village." Lecture. Old Sturbridge Village, Sturbridge, Massachusetts, 1 November 1971.
- \_\_\_\_\_. "A Waspish View of Early California: Anglo-Colonialism in the Material Environment." Lecture. Smithsonian 19th Century Seminar. 16 November 1971.
- \_\_\_\_\_. "An Essex County Girl in the Gold Rush." Lecture. Middleton Historical Society, Middleton, Massachusetts, 19 May 1972.

## DEPARTMENT OF INDUSTRIES

- Berkebile, Don H. "The Motor Truck and its Place in the National Museum's Collections." Lecture. U.S. Truck Historical Society, National Museum of Transport, St. Louis, Missouri, March 1972.
- Gardner, Paul V. *The Glass of Frederick Carder*. 373 pages, illustrated. New York: Crown Publishers, Inc., 1971.
- Hoffman, John N. *Centennial Year in Review, Prince Edwin Lodge, Middletown, Pennsylvania*. 30 pages, Harrisburg, Pennsylvania: Central Publishing Company, 1972.
- \_\_\_\_\_. "Coal's Future in the Energy Market." Lecture. Industrial War College, Ft. McNair, Washington, D.C., 8 February 1972.
- \_\_\_\_\_. "Minerals for the Future—U.S. Position." Lecture. Industrial War College, Ft. McNair, Washington, D.C., 15 February 1972.
- \_\_\_\_\_. "Stockpiling—A Need of the Future." Lecture. Industrial War College, Ft. McNair, Washington, D.C. 22 March 1972.
- \_\_\_\_\_. "The Search for Space Age Minerals." Lecture. U.S. Army Corps of Engineers Mobilization Detachment, Army Map Service, Washington, D.C., 29 March 1972.
- \_\_\_\_\_. "Mechanization of the Anthracite Industry." Paper presented to the 7th Annual Conference of the Pennsylvania Research Association, Harrisburg, Pennsylvania, 29 April 1972.
- Miller, J. Jefferson II. "English Yellow-Glazed Earthenware, Part I." *Antiques Magazine* (July 1971), pages 93-98.
- \_\_\_\_\_. "English Yellow-Glazed Earthenware, Part II." *Antiques Magazine* (August 1971), pages 236-240.
- \_\_\_\_\_. "The Porcelain Trade of America." *Discovering Antiques*, number 43, (Fall 1971), pages 1019-1023.
- \_\_\_\_\_. "Analysis of the Ralph Wark Collection of Meissen Porcelain." Paper read to the American Ceramic Circle, New York, New York, November 1971.
- Schlebecker, John T. "Farmers in the Lower Shenandoah Valley, 1850." *The Virginia Magazine of History and Biography*, volume 79 (October 1971), pages 462-476.
- \_\_\_\_\_. "Curatorial Agriculture." *Agricultural History*, volume 46 (January 1972), pages 95-103.



- \_\_\_\_\_. "Farming on the Western Frontier." Lecture. The Western History Association Convention, Santa Fe, New Mexico, 15 October 1971.
- Schlebecker, John T., and Gale E. Peterson. "Living Historical Farms Handbook" *Smithsonian Studies in History and Technology*, number 16 (24 April 1972), 91 pages.
- Sharrer, G. Terry. "The Indigo Bonanza in South Carolina, 1740-90." *Technology and Culture*, volume 12, number 3 (July 1971), pages 447-455.
- \_\_\_\_\_. "International Impact of Selected Agricultural Pressures." Graduate research seminar. University of Maryland, Department of Agricultural and Resource Economics, Spring semester 1972.
- White, John H., Jr. "The Railway Museum—Does it Have a Future." Paper read to the American Railway Museum Association, Baltimore, Maryland, October 1971.

#### DEPARTMENT OF NATIONAL AND MILITARY HISTORY

- Collins, Herbert Ridgeway. *Presidents on Wheels*. Washington, D.C.: Acropolis Books, 1971.
- Klaphor, Margaret B. "Furniture in the Capitol: Desks and Chairs Used in the Chamber of the House of Representatives, 1819-1857." *Records of the Columbia Historical Society* (May 1972), pages 190-211.
- Langley, H.D. "Early Diplomatic Couriers." *Foreign Service Journal* (October 1971), pages 6-10.
- \_\_\_\_\_. "An Adventurer Critiques the Custer Disaster." *Montana History* (Spring 1972), pages 20-33.
- Lundeberg, Philip K. "The Museum Perspective." *Military Affairs*, volume 35 (1971), pages 111-113, 157-158; and volume 36 (1972), pages 22-24, 65-67.
- Peterson, Mendel L. "Buried Treasure Beneath the Spanish Main." *Courier* (May 1972), UNESCO: Paris.
- \_\_\_\_\_. "Bermuda Underwater Expedition, 1965." *National Geographic Society Research Reports*, number 506. 1971.

#### DEPARTMENT OF SCIENCE AND TECHNOLOGY

- Davis, Audrey B. "Magnesia Alba Before Black." Presented at the History of Pharmacy meeting, Houston, Texas, 24 April 1972.
- Eklund, Jon B. "Duhamel du Monceau." Pages 223-225, in *Dictionary of Scientific Biography*, volume 4. New York: Charles Scribner's Sons, 1971.
- \_\_\_\_\_. "The Medical Student's Experience in Edinburgh." Lecture. Conference on Scottish Studies, Banner Elk, North Carolina, 5-6 May 1972.
- \_\_\_\_\_. "Some Applications of Philosophy of Science to the History of Chemistry." Lecture to curators, Department of Science and Technology, Smithsonian Institution, 16 February 1972.
- Finn, Bernard S. "Telegraphy: Theory and Practice in the 19th Century." Lecture. XIII International Congress for the History of Science, Moscow, August 1971.
- \_\_\_\_\_. "History in Three Dimensions." Lecture. Delta Epsilon Sigma Honor Society, Stonehill College, North Easton, Massachusetts, April 1972.
- \_\_\_\_\_. "Alexander Graham Bell." Pages 582-583, in *Dictionary of Scientific Biography*, volume 1. New York: Charles Scribner's Sons, 1970. [Not previously reported.]
- \_\_\_\_\_. "Josiah Latimer Clark." Pages 288-289, in *Dictionary of Scientific Biography*, volume 2. New York: Charles Scribner's Sons, 1970. [Not previously reported.]



- \_\_\_\_\_. "James Cumming." Page 497, in *Dictionary of Scientific Biography*, volume 2. New York: Charles Scribner's Sons, 1970. [Not previously reported.]
- \_\_\_\_\_. "Thomas Alva Edison." Pages 283-284, in *Dictionary of Scientific Biography*, volume 4. New York: Charles Scribner's Sons, 1971.
- \_\_\_\_\_. "Richard Tetley Glazebrook." Pages 423-424, in *Dictionary of Scientific Biography*, volume 5. New York: Charles Scribner's Sons, 1972.
- Hamarnah, Sami K., *Pharmacy Museums, U.S.A.* vi + 49 pages, illustrated. Madison, Wisconsin: American Institute of the History of Pharmacy, 1972.
- \_\_\_\_\_. "The Physician and the Health Professions in Medieval Islam." *Bulletin of the New York Academy of Medicine*, volume 47 (September 1971), pages 1088-1110, 6 illustrations.
- \_\_\_\_\_. "Contributions of Ali al-Tabari to Ninth Century Arabic Culture." *Folia Orientalia*, volume 12 (1971), pages 91-101.
- \_\_\_\_\_. "Arabic Medicine and its Impact on the Teaching and Practice of the Healing Arts in the West." *Accademia Nazionale dei Lincei* (Rome, Italy), volume 13 (1971), pages 395-425, 10 plates.
- \_\_\_\_\_. "Development of Arabic Medical Therapy in the Tenth Century." *Journal of the History of Medicine and Allied Sciences*, volume 27 (1972), pages 65-79.
- \_\_\_\_\_. "Dental Exhibition and Reference Collection at the Smithsonian Institution." *HSMHA Health Reports*, volume 87, number 4 (1972), pages 291-303, illustrated.
- \_\_\_\_\_. "Physicians and Practitioners during the Arabic Golden Age." Lecture. Medical Faculty, University of Alexandria, Egypt, 28 October 1971.
- \_\_\_\_\_. "Origins and Concepts of Arabic Medical Therapy." Lecture. National Library of Medicine, 15 March 1972.
- \_\_\_\_\_. "Educational Impact of Pharmacy Museums: A Historical Survey." Lecture. National Pharmaceutical Association of Washington, D.C. 17 March 1972.
- \_\_\_\_\_. "Museum Curators and Displays." Lecture. International Students Incorporated, Washington, D.C., 25 March 1972.
- \_\_\_\_\_. "Greco-Roman Medical Legacy and its Influence on Arabic Medicine." Lecture. North-Carolina State University at Raleigh, 20 April 1972.
- Mayr, Otto. "Feedback Mechanisms in the Historical Collections of the National Museum of History and Technology." *Smithsonian Studies in History and Technology*, number 12 (20 July 1971), 133 pages, 145 figures.
- \_\_\_\_\_. "Victorian Physicists and Speed Regulation: An Encounter Between Science and Technology." *Notes and Records of the Royal Society*, volume 26 (1971), pages 205-228.
- \_\_\_\_\_. "Maxwell and the Origins of Cybernetics." *Isis*, volume 62 (1971), pages 425-444.
- Multhauf, Robert P. "The French Crash-Program for Saltpeter Production, 1776-94." *Technology and Culture*, volume 12 (1971), pages 163-181.
- \_\_\_\_\_. *Laurits Christian Eichner: Craftsman, 1894-1967*. 60 pages. Washington, D.C.: Privately printed, 1971.
- Warner, Deborah Jean. "The Celestial Cartography of Giovanni Antonio Vanosina da Varese." *Journal of the Warburg and Courtauld Institutes*, volume 34 (1971), pages 366-367.
- \_\_\_\_\_. "Lewis Boss." Pages 332-333, in *Dictionary of Scientific Biography*, volume 2. New York: Charles Scribner's Sons, 1970. [Not previously reported.]

- \_\_\_\_\_. "John A. Brashear." Pages 423-424, in *Dictionary of Scientific Biography*, volume 2. New York: Charles Scribner's Sons, 1970. [Not previously reported.]
- \_\_\_\_\_. "William Robert Brooks." Pages 502-503, in *Dictionary of Scientific Biography*, volume 2. New York: Charles Scribner's Sons, 1970. [Not previously reported.]
- \_\_\_\_\_. "Ernest William Brown." Page 516, in *Dictionary of Scientific Biography*, volume 2. New York: Charles Scribner's Sons, 1970. [Not previously reported.]
- \_\_\_\_\_. "Sherburne Wesley Burnham." Pages 614-615, in *Dictionary of Scientific Biography*, volume 2. New York: Charles Scribner's Sons, 1970. [Not previously reported.]
- \_\_\_\_\_. "Alvan Graham Clark." Page 288, in *Dictionary of Scientific Biography*, volume 3. New York: Charles Scribner's Sons, 1971.
- \_\_\_\_\_. "George Cary Comstock." Page 374, in *Dictionary of Scientific Biography*, volume 3. New York: Charles Scribner's Sons, 1971.

### Freer Gallery of Art

- Atil, Esin. *Exhibition of 2500 Years of Persian Art*. 83 pages. Washington, D.C.: Freer Gallery of Art, Smithsonian Institution, 1971.
- \_\_\_\_\_. "A Stunning Display of Art with a 2500-year History." *Smithsonian*, volume 3, number 1 (1972), pages 16-22.
- \_\_\_\_\_. "Ottoman Art at the Freer Gallery." *Sanat Tarihi Araştırmaları*, volume 4 (1971), pages 185-213. (Annual bulletin of the History of Art Department of Istanbul University.)
- Chase, W. Thomas. "Science in Art." In *The McGraw-Hill Yearbook of Science and Technology 1971*. New York: McGraw-Hill Book Company, 1972.
- \_\_\_\_\_. "Egyptian Blue as a Pigment and Ceramic Material." Chapter 5, in Robert H. Brill, editor, *Science and Archaeology*. Cambridge and London: MIT Press, 1971.
- \_\_\_\_\_. "Discussion of Gondus's Analytical Results." Lecture. Fogg Art Museum, January 1971. [Not previously reported.]
- \_\_\_\_\_. "Optics and the Examination of Works of Art." Lecture. For the Optical Society of America at Georgetown University, May 1971. [Not previously reported.]
- \_\_\_\_\_. "Chinese Belt-Hooks." Lecture. Archaeology Seminar, Kyoto University, Japan, October 1971.
- \_\_\_\_\_. "Chinese Belt-Hooks and Their Technical Examination." Lecture. The National Palace Museum, Taipei, Taiwan, October 1971.
- \_\_\_\_\_. "Some Thoughts on Analyses of Ancient Chinese Bronzes." Lecture. Nuclear Engineering Seminar, National Tsing-hua University, Hsinchu, Taiwan, October 1971.
- \_\_\_\_\_. "Analyses of Ancient Bronzes." Lecture. Indian National Museum, New Delhi, November 1971.
- \_\_\_\_\_. "Aspects of Analysis of Chinese Bronzes." Lecture. Oriental Bronze Seminar. The Royal Ontario Museum, Toronto, Canada, December 1971.
- \_\_\_\_\_. "My Trip to Taiwan." Lecture. Washington Region Conservation Guild, January 1972.
- \_\_\_\_\_. "Practical Problems and Technical Concepts in Treatment of Bronze Disease." Lecture. Washington Region Conservation Guild, February 1972.



- \_\_\_\_\_. "Thermoluminescence and the Freer Chinese Bronzes." Lecture. American Oriental Society, 182nd Annual Meeting, Chapel Hill, North Carolina, April 1972.
- Chase, W. Thomas, Rutherford J. Gettens, and Roy S. Clarke, Jr. "Two Early Chinese Bronze Weapons with Meteoritic Iron Blades." *Freer Gallery of Art Occasional Papers*, volume 4, number 1 (1971).
- Chase, W. Thomas, and Jeremy Hutt, "Aaron Draper Shattuck's Patent Stretcher Key." *Studies in Conservation*, number 17 (1972), pages 12-29.
- Chase, W. Thomas, and Maurice Salmon. "Spectroscopy in the History of Materials." Lecture. Society for Applied Spectroscopy, Baltimore-Washington Section, May 1972.
- The Freer Gallery of Art I: China*, 184 pages, Tokyo: Kodansha, Ltd., 1971. In English and Japanese.
- The Freer Gallery of Art II: Japan*, 184 pages, Tokyo: Kodansha, Ltd., 1971. In English and Japanese.
- Lawton, Thomas. *Eugene and Agnes E. Meyer Memorial Exhibition*. 77 pages. Washington, D.C.: Freer Gallery of Art, Smithsonian Institution, 1971.
- \_\_\_\_\_. "Notes on Five Paintings from a Ch'ing Dynasty Collection." *Ars Orientalis*, volume 8 (1970), pages 191-215. [Not previously reported.]
- \_\_\_\_\_. "Aspects of Chinese Culture." Course. Institute for Sino-Soviet Studies of the George Washington University. September 1970-January 1971. [Not previously reported.]
- \_\_\_\_\_. "Chinese Buddhist Art." Lecture. Johns Hopkins University, November 1970. [Not previously reported.]
- \_\_\_\_\_. "Chinese Buddhist Art: Han through Sung." Lecture. Allentown Art Museum, April 1971. [Not previously reported.]
- \_\_\_\_\_. "Charles Lang Freer as a Collector." Lecture. Metropolitan Museum of Art, October 1971.
- \_\_\_\_\_. "Charles Lang Freer as a Collector." Lecture. Cosmos Club, Washington, D.C., December 1971.
- Lovell, Hin-cheung. "Notes on Ch'ü-lu Hsien." *Oriental Art*, volume 16, number 3 (Autumn, 1970), pages 259-261. [Not previously reported.]
- \_\_\_\_\_. "Wang Hui's *Dwelling in the Fu-ch'un Mountains*: A Classical Theme, Its Origin and Variations." *Ars Orientalis*, volume 8 (1970), pages 217-242. [Not previously reported.]
- \_\_\_\_\_. "The Art of the Ch'ien-lung Period." Lecture. The Hermitage Foundation, Norfolk, November 1971.
- \_\_\_\_\_. "Chinese Ceramics." Lecture. Chinese Community Church, Washington, D.C., April 1972.
- Pope, John A. "The Beginnings of Procelain in Japan." Pages 1-7 in *200 Years of Japanese Procelain*. Exhibition catalog. St. Louis, Missouri: City Art Museum of St. Louis, 1970. [Not previously reported.]
- \_\_\_\_\_. "The Freer Gallery of Art." *Records of the Columbia Historical Society of Washington, D.C., 1969-1970* (June 1971), pages 380-398.
- \_\_\_\_\_. "Chinese Influences on Iznik Pottery: A Reexamination of an Old Problem." Pages 125-139, in Richard Ettinghausen, editor, *Islamic Art in the Metropolitan Museum of Art*. New York: 1972.
- \_\_\_\_\_. "Chinese Porcelains at Home and Abroad." Lecture. The Alexandria Association, Alexandria, Virginia, October 1970. [Not previously reported.]
- \_\_\_\_\_. "Japanese Porcelains and The Dutch Trade." Lecture. City Art Museum of St. Louis, St. Louis, Missouri, December 1970. [Not previously reported.]



- \_\_\_\_\_. "Charles Lang Freer and His Collection." Lecture. The Alexandria Association, Alexandria, Virginia, October 1970. [Not previously reported.]
- \_\_\_\_\_. "Japanese Porcelain and the Dutch Trade." Lecture. William Rockhill Nelson Gallery of Art, Kansas City, Missouri, December 1970. [Not previously reported.]
- \_\_\_\_\_. "Ming Porcelain: A Retrospective." Lecture. China Institute in America, Inc., New York, November 1970. [Not previously reported.]
- Stern, Harold P. "Preface." In *Zaigai Hihō—Suzuki Haronobu (Ukiyoe Prints in Western Collections.)* Tokyo: Gakken, 1972.
- \_\_\_\_\_. "Introduction." In Hosomi Kokoan. *Toki ni Hana*. Osaka: Naniwa Sha, 1971.
- \_\_\_\_\_. "Japan, Fine Arts, and Architecture." Pages 57-59, in *East Asia: A Bibliography for Undergraduate Libraries*. Williamsport, Pennsylvania: Bro-Dart Publishing Co., 1970. [Not previously reported.]
- \_\_\_\_\_. *Rimpa: Masterworks of the Japanese Decorative School*. New York: Japan Society, 1971.
- \_\_\_\_\_. "Rimpa." Lecture. Japan House, New York, September 1971.
- \_\_\_\_\_. "Mirror, Mirror." Lecture. The Art Institute of Chicago, November 1971.
- \_\_\_\_\_. "Technical Problems Relating to Ukiyoe." Lecture. The Art Institute of Chicago, November 1971.
- \_\_\_\_\_. "Ukiyoe Paintings in the Freer Gallery of Art." Lecture. Tokyo, January 1972.
- \_\_\_\_\_. "Japan and the United States—The Future of Ukiyoe Studies." Lecture. Tokyo, January 1972.
- \_\_\_\_\_. "The Paintings of Tachibana Tenkei." Lecture. West Texas State University, June 1972.
- Winter, John. "Thermoluminescent Dating of Pottery." Chapter 4, in H.N. Michael and E.K. Ralph, editors, *Dating Techniques for the Archaeologist*. Cambridge and London: MIT Press, 1971.

### National Collection of Fine Arts

- Breeskin, Adelyn D. "20th Century American Artists." Lecture. Wives Seminar Foreign Service Institute, Washington, D.C. (Monthly lecture), 1971-1972.
- \_\_\_\_\_. "Kathe Kollwitz." Lecture. Temple Oheb Shalom, Baltimore, Maryland, 15 November 1971.
- \_\_\_\_\_. "The Delaware Art Center." Lecture. Wilmington Society of the Fine Arts, Wilmington, Delaware, 19 November 1971.
- \_\_\_\_\_. "Philadelphia Museum of Art. Lecture. Philadelphia, Pennsylvania, 18 November 1971.
- \_\_\_\_\_. "Mary Cassatt." Lecture. The Norfolk Society of Arts, Norfolk, Virginia, 7 January 1972.
- \_\_\_\_\_. "Early Years of Print Collecting in Baltimore." Lecture. Baltimore Print Club, Maryland, 27 February 1972.
- \_\_\_\_\_. "The Rise of Women Artists." Lecture. The Cosmopolitan Club, New York, New York, 16 March 1972.
- \_\_\_\_\_. "The Rise of Women Artists." Lecture. The North Carolina Museum of Art, Raleigh, North Carolina, 28 March 1972.
- \_\_\_\_\_. "Two American Painters: Fritz Scholder and T.C. Cannon." Lecture. National Collection of Fine Arts. Washington, D.C. 11 April 1972.

- \_\_\_\_\_. "The Rise of Women in the Arts." Lecture. Corcoran Gallery of Art, Washington, D.C., 21 April 1972.
- \_\_\_\_\_. "20th Century American Art in the National Collection of Fine Arts." Lecture. National Collection of Fine Arts, Washington, D.C., 20 June 1972.
- \_\_\_\_\_. *William H. Johnson: 1901-1970*. Catalog. 208 pages, 168 illustrations. Washington, D.C.: Smithsonian Institution Press, 1971.
- \_\_\_\_\_. *Lee Gatch, 1902-1968*. Catalog. 64 pages, 40 illustrations. Washington, D.C.: Smithsonian Institution Press, 1971.
- \_\_\_\_\_. "Introduction." *Edith Gregor Halpert, Memorial Exhibition*. Catalog checklist. 4 pages, 1 illustration. Washington, D.C.: Smithsonian Institution Press, 1972.
- \_\_\_\_\_. *Two American Painters: Fritz Scholder and T.C. Cannon*. Catalog. 45 pages, 15 illustrations. Washington, D.C.: Smithsonian Institution Press, 1972.
- Feldman, Arthur M. "The History of the Renwick Gallery." Lecture. The Corcoran Gallery of Art, Washington, D.C., 26 April 1972.
- \_\_\_\_\_. "The History of the Renwick Gallery." Lecture. National Collection of Fine Arts, Washington, D.C., 20 May 1972.
- \_\_\_\_\_. "American Furniture 17th, 18th & 19th Centuries." In *Oxford Companion to the Useful Arts*. London, England, Oxford University Press, 1972.
- Flint, Janet. *Boris Anisfeldt: Twenty Years of Designs for the Theater*. Catalog. 35 pages, 12 illustrations, Washington, D.C.: Smithsonian Institution Press, 1971.
- \_\_\_\_\_. *Drawings by William Glackens, 1870-1938*. Catalog. 20 pages 12 illustrations. Washington, D.C.: Smithsonian Institution Press, 1972.
- \_\_\_\_\_. "Art Nouveau: American Posters and Prints." *Discovering Antiques*, London, England, issue 79 (April 1972), pages 1882-1886.
- \_\_\_\_\_. *J. Alden Weir: An American Printmaker*. Catalog. 96 pages, 88 illustrations. Provo, Utah: Brigham Young University Press, 1972.
- Herman, Lloyd E. "Crafts in America: Who Needs Them Today?" Lecture. Montgomery College, Takoma Park, Maryland, 17 April 1972.
- \_\_\_\_\_. "Preface." Page 2, in *Woodenworks*. Catalog. 48 pages, 41 illustrations. Saint Paul, Minnesota: Minnesota Museum of Art, January 1972.
- Muhlert, Jan K. "William H. Johnson." TV interview. WTTG-TV, Channel 5, Washington, D.C., 11 and 14 November 1971; "Panorama," Channel 5, Washington, D.C., 12 November 1971; and WTOP-TV Channel 9, Washington, D.C., 1 December 1971.
- \_\_\_\_\_. "William H. Johnson." Lecture. United States Information Agency, Washington, D.C., 16 March 1972.
- Taylor, Joshua C. "To Catch the Eye and Hold the Mind: The Museum as Educator." *Art Education* (October 1971).
- \_\_\_\_\_. "The National Collection of Fine Arts." Lecture. Educational and Cultural Attaches, Cosmos Club, Washington, D.C., 12 October 1971.
- \_\_\_\_\_. "Sculpture as the Exploration of Space." Lecture. The J.B. Speed Art Museum, Louisville, Kentucky, 13 November 1971.
- \_\_\_\_\_. "The Malbin Collection." Lecture. American Institute of Designers, Detroit, Michigan, 21 March 1972.
- \_\_\_\_\_. "The Modern Image." Lecture. The High Museum, Atlanta, Georgia, 10 April 1972.
- \_\_\_\_\_. "Where is Art?" Lecture. University of Chicago, Chicago, Illinois, 22 April 1972.
- \_\_\_\_\_. "The Obligation of the Artist." Lecture. The Art Academy of Cincinnati, 19 May 1972.

- \_\_\_\_\_. "What is an Art School?" Commencement address. Portland, Oregon: Museum Art School, August 1971.
- \_\_\_\_\_. "The Concept of Abstraction in Italy." In *Color & Form 1909-1941*. San Diego, California: The Fine Arts Gallery of San Diego, November 1971.
- Truettner, William H. "Collecting Activities of William T. Evans." *The American Art Journal*, (November 1971).
- Truettner, William H., and Robin Bolton-Smith. "National Parks and the American Landscape." Pages 13-33 in, *National Parks and the American Landscape*. Catalog. Washington, D.C.: Smithsonian Institution Press, 1972.

### Cooper-Hewitt Museum of Decorative Arts and Design

- Dee, Elaine Evans. "Catalog of the Exhibition." In *Winslow Homer, 1836-1910*. Catalog. 125 pages [unnumbered], 106 illustrations. Washington, D.C.: Smithsonian Institution Press, 1972.
- Frangiamore, Catherine. "On Wallpaper." *The Designer* (March 1972), pages 4-6.
- Goodrich, Lloyd. "Introduction." In *Winslow Homer, 1836-1910*. Catalog. 125 pages [unnumbered], 106 illustrations. Washington, D.C.: Smithsonian Institution Press, 1972.
- Sonday, Milton. "A Second Type of Mughal Sash." *Textile Museum Journal* (1971).
- Wilmerding, John. "Winslow Homer's Drawings." In *Winslow Homer, 1836-1910*. Catalog. 125 pages [unnumbered], 106 illustrations. Washington, D.C.: Smithsonian Institution Press, 1972.

### National Armed Forces Museum Advisory Board

- Elliott, John M. "Wonder Where Ole Yellow Went." *Journal of American Aviation Historical Quarterly*, volume 17, number 1 (1st quarter 1972), pages 18-20.
- \_\_\_\_\_. "Another Look at the Record." *Marine Corps Gazette* (June 1972), pages 56-57.
- \_\_\_\_\_. "Sparrowhawk Remarked." *Journal of American Aviation Historical Quarterly*, volume 17, number 2 (2d quarter 1972), pages 117-121.
- Hutchins, James S. "Westward with the United States Dragoons." Lecture. Potomac Corral, The Westerners, Washington, D.C., 21 October 1971.
- \_\_\_\_\_. "Henry Dodge, George Catlin, and the 'Grand Western Tour,' 1834." Lecture. Missouri Historical Society, St. Louis, Missouri, 25 February 1972.
- Stokesberry, James J. "Washington, D.C., in the Civil War." Lecture. Point Park College, Pittsburgh, Pennsylvania, April 1972.
- \_\_\_\_\_. "The Tecumseh Project." Lecture. John Ericsson Republican League of Illinois, St. Charles, Illinois, April 1972.

### Joseph Henry Papers

- Molella, Arthur P. "Philosophy and Nineteenth-Century German Electrodynamics: The Problem of Action at a Distance." PhD dissertation, Cornell University, New York, 1972.
- Reingold, Nathan. "Cleveland Abbe." Page 6, in *Dictionary of Scientific Biography*, volume 1. New York: Charles Scribner's Sons, 1970. [Not previously reported.]
- \_\_\_\_\_. "Alexander Dallas Bache." Pages 363-365, in *Dictionary of Scientific Biography*, volume 1. New York: Charles Scribner's Sons, 1970. [Not previously reported.]



- \_\_\_\_\_. "Louis Agricola Bauer." Pages 521-522, in *Dictionary of Scientific Biography*, volume 1. New York: Charles Scribner's Sons, 1970. [Not previously reported.]
- \_\_\_\_\_. "Nathaniel Bowditch." Pages 368-369, in *Dictionary of Scientific Biography*, volume 2. New York: Charles Scribner's Sons, 1970. [Not previously reported.]
- \_\_\_\_\_. "James McKeen Cattell." Pages 130-131, in *Dictionary of Scientific Biography*, volume 3. New York: Charles Scribner's Sons, 1971.
- \_\_\_\_\_. "James P. Espy." Pages 410-411, in *Dictionary of Scientific Biography*, volume 4. New York: Charles Scribner's Sons, 1971.
- \_\_\_\_\_. "O.W. Gibbs." Pages 393-394, in *Dictionary of Scientific Biography*, volume 5. New York: Charles Scribner's Sons, 1972.
- \_\_\_\_\_. "Joseph Henry: The Improbable Creator of an Improbable Institution." Lecture. 125th Anniversary of the Founding of the Smithsonian Institution, September 1971.
- \_\_\_\_\_. "Joseph Henry as a Two Cultures Myth." Lecture. History of Science and Technology Forum, Iowa State University, March 1972.
- \_\_\_\_\_. "Historical Editing." Lecture. Graduate Program, New York State Historical Association, Cooperstown, March 1972.
- \_\_\_\_\_. "History of Science in the United States, 1800-1950." Seminar. Smithsonian Institution, September 1971-June 1972.
- Reingold, Nathan, and A.P. Molella. "Theories and Ingenious Mechanics: Joseph Henry Defines Science." Paper presented to joint session of the History of Science Society and the American Historical Association, December 1971.

### Office of American Studies

- Washburn, Wilcomb E. "American Indians." Pages 355-357, in *The Americana Annual, 1970: Yearbook of the Encyclopedia Americana*, 48th edition. New York: Americana Corporation, 1970. [Not previously reported.]
- \_\_\_\_\_. "American Indians." Pages 348-349, in *The Americana Annual, 1971: Yearbook of the Encyclopedia Americana*, 49th edition. New York: Americana Corporation, 1971.
- \_\_\_\_\_. "American Indians." Pages 342-343, in *The Americana Annual, 1971: Yearbook of the Encyclopedia Americana*, 50th edition. New York: Americana Corporation, 1972.
- \_\_\_\_\_. *Red Man's Land/White Man's Law: A Study of the Past and Present Status of the American Indian*. x + 288 pages. New York: Charles Scribner's Sons, 1971.
- \_\_\_\_\_. "Representation of Unknown Lands in XIV-, XV-, and XVI-Century Cartography." In *Revista do Instituto Histórico e Geográfico Brasileiro*, volume 287, pages 449-462. Rio de Janeiro: Departamento de Imprensa Nacional, 1970. [A variation, with some material omitted, some added, of paper of similar title published at Coimbra, Portugal, listed in last annual report.]
- \_\_\_\_\_. Editor. *Proceedings of the Vinland Map Conference*. xv + 187 pages. Published for the Newberry Library. Chicago: University of Chicago Press, 1971.
- \_\_\_\_\_. "The Writing of American Indian History: A Status Report." *Pacific Historical Review*, volume 40, number 3 (August 1971), pages 261-281.

## Office of Seminars

Dillon, Wilton S. "Anthropological Perspectives on Violence." Chapter 4, in Gene Usdin, editor, *Perspectives on Violence*. New York: Brunner/Mazel, publishers, 1972.

## Conservation-Analytical Laboratory

- Eirk, K.G. "An Experimental Evaluation of Accepted Methods for Removing Spots and Stains from Works of Art on Paper." *Bulletin, International Institute for Conservation - American Group*, volume 12, number 2 (1972), pages 82-87.
- Goodway, M.E. "Reaching the Verdict on a Pair of Earrings: Not Guilty." *Bulletin, International Institute for Conservation - American Group*, volume 12, number 2 (1972), pages 117-118.
- McMillan, E. "Notes on Paper." *Bulletin, International Institute for Conservation - American Group*, volume 12, number 1 (1971) pages 11-15.
- Olin, J.S. "Neutron-Activation Analysis of Medieval Window Glass." Lecture. Tenth National Meeting of the Society for Applied Spectroscopy, St. Louis, Missouri, October 1971.
- Olin, J.S. and E.V. Sayre. "Compositional Categories of Some English and American Pottery of the American Colonial Period." Chapter 14, in *Science and Archaeology*. Cambridge: MIT Press, 1971.
- Olin, J.S., B.A. Thompson, and E.V. Sayre. "Characterization of Medieval Window Glass by Neutron Activation Analysis." *Developments in Applied Spectroscopy*, volume 10 (1972).
- Organ, R.M. "Conservation Problems." Lecture. Williamsburg Historic House Seminar, National Trust, Smithsonian Institution, 9 July 1971.
- \_\_\_\_\_. "Artefact Conservation." Lectures No. 21 to 40 and 61 to 80 of a series delivered in fall and winter at Smithsonian Institution, 1971-1972.
- \_\_\_\_\_. "Practical Problems and Technical Concepts in Treatment of Bronze Disease." Lecture, shared. Washington Region Conservation Guild. Smithsonian Institution, 3 February 1972.
- \_\_\_\_\_. "Conservation Problems". Lecture. Woodlawn Conference, National Trust. Smithsonian Institution, 24 February 1972.
- \_\_\_\_\_. "Conservation of Museum Artifacts". Lecture. Department of Art, University of Maryland, 15 March 1972.
- \_\_\_\_\_. "Care and Restoration of Ceramics, Glass, and Metals." Lecture. Virginia History Federation. Gunston Hall, 8 April 1972.
- \_\_\_\_\_. "Stone Diseases." Lecture. School of Architecture, Columbia University, 11 April 1972.
- Salmon, M.E. "Uses of Spectroscopy in the History of Materials." Lecture. Baltimore-Washington Section of Society for Applied Spectroscopy. Hyattsville, 23 May 1972.

## Office of Public Affairs

(Leaflets issued by the Office)

- "Color Slides of Items Exhibited in the American Costume Hall. Division of Costumes and Furnishings, Information Leaflet 71-17.
- "Archeology as a Career." Office of Public Affairs, Information Leaflet 71-18. "Selected Readings in Archeology." Office of Public Affairs, Information Leaflet 71-19.

- "Instructions for Completing Smithsonian Photographic Order Form for Reproduction of Manuscripts." Department of Anthropology, Information Leaflet 71-20.
- "Announcement of Publication, Copp Family Textiles," Division of Textiles, Information Leaflet 71-21.
- "Making a 'Limberjack'." Office of Elementary and Secondary Education, Information Leaflet 71-22.
- "Numismatic Dealers in New York City." Division of Numismatics, Information Leaflet 71-23.
- "Selected Resources for the Study of Human Ecology." Office of Elementary and Secondary Education, Information Leaflet 71-24.
- "Procedure for Motion Pictures, TV Filming." Office of Public Affairs, Information Leaflet 71-25.
- "SI Photographic Lighting Restrictions." Office of Public Affairs, Information Leaflet 71-26.
- "Numismatic Dealers in N.J., N.Y., Pa." Division of Numismatics, Information Leaflet 71-27.
- "Numismatic Dealers in N.C., S.C., Ga., Fla., etc." Division of Numismatics, Information Leaflet 71-28.
- "Numismatic Dealers in Md., D.C., Va., Ky., etc." Division of Numismatics, Information Leaflet 71-29.
- "Numismatic Dealers in Minn., Neb., Kan., Okla., etc." Division of Numismatics, Information Leaflet 71-30.
- "Numismatic Dealers in Ohio, Illinois, Indiana, Michigan, etc." Division of Numismatics, Information Leaflet 71-31.
- "Numismatic Dealers in Oregon, Nevada, Arizona, Colorado, etc." Division of Numismatics, Information Leaflet 71-32.
- "Numismatic Dealers in Hawaii, Alaska, California, Washington." Division of Numismatics, Information Leaflet 71-33.
- "Numismatic Dealers in New England." Division of Numismatics, Information Leaflet 71-34.
- "Photos of Women's 19th Century Dresses." Division of Costume and Furnishings, Information Leaflet 71-35.
- "Photos of Items in American Costume Hall." Division of Costume and Furnishings, Information Leaflet 71-36.
- "Photo Services Division Slide Price List." Photo Services Division, Information Leaflet 71-37.
- "Photos Available from National Anthropology Archives." Department of Anthropology, Information Leaflet 71-38.
- "Sources of Non-Technical Information on Zoology." Department of Vertebrate Zoology, Information Leaflet 71-39.
- "BAE Manuscript Collection." Department of Anthropology, Information Leaflet 71-40.
- "Sources of Information on Mollusks." Division of Mollusks, Information Leaflet 72-1.
- "Making a 'Limberjack' " (revision). Office of Education, Information Leaflet 72-2.
- "Suggested Publications on Fishes—West Coast North America-Marine. Division of Fishes, Information Leaflet 72-3.
- "Hammer Dulcimer History and Playing." Office of Education, Information Leaflet 72-4.
- "Making a Hammer Dulcimer." Office of Education, Information Leaflet 72-5.
- "Publications Available on Exchange." SI Libraries, Information Leaflet 72-6.



- "Suggested References on Dolls." Division of Costumes and Furnishings, Information Leaflet 72-7.
- "Suggested Publications on Fishes—Asia Fresh-Water and Marine." Division of Fishes, Information Leaflet 72-8.
- "Suggested Publications on Sharks." Division of Fishes, Information Leaflet 72-9.
- "Suggested Publications on Fishes—North American-Fresh-water." Division of Fishes, Information Leaflet 72-10.
- "Suggested Publications on Fishes (General)." Division of Fishes, Information Leaflet 72-11.
- "Bibliography of Selected Readings on the Presidents of the U.S. and Presidential Campaigning." Division of Political History, Information Leaflet 72-12.
- "Recommended Readings for Political Campaign Collecting." Division of Political History, Information Leaflet 72-13.
- "The Foucault Pendulum." Division of Physical Sciences, Information Leaflet 72-14.
- "Photographs of American Presidential Memorabilia in the SI Collections." Division of Political History, Information Leaflet 72-15.

### Division of Performing Arts

- Rinzler, Ralph C., and Norm Cohen. "Uncle Dave Macon: A Bio-Discography." *John Edwards Memorial Foundation Special Series*, number 3.
- Rinzler, Ralph C. "Foreword." In *The Songs of Doc Watson*. New York: Oak Publications, 1971.

### Smithsonian Institution Press

- Hubel, Gordon. "Subsidiary Rights." Chapter 2, in *Marketing Handbook*. New York: The Association of American University Presses, 1971.

### Reading Is Fundamental

- RIF's Guide to Book Selection*. Supplement 2. 68 pages. October 1971.
- RIF Newsletter*, volume 1, issue 3 (August 1971), 4 pages, and volume 1, issue 4 (November 1971), 6 pages.
- Reading Is Fundamental. Descriptive brochure. 4 pages. September 1971.

### Information Systems Division

- Creighton, Reginald A., and James J. Crockett. "SELGEM: A System for Collection Management." *Smithsonian Institution Information Systems Innovations*, volume 2, number 3 (August 1971).
- Roth, H. Daniel. "Cluster Analysis for the Biological and Social Sciences." In *Cuadernos de Historia Económica de Cataluña, VI*. Barcelona, Spain: Publicación Interna del Departamento de Historia Económica de la Facultad de Ciencias Políticas, Económicas y Comerciales de las Universidades, y del Instituto Municipal de Historia de Barcelona, October 1971.
- \_\_\_\_\_. "Statistical Reviews." *International Journal of Mathematical Geology*, volume 4, number 2 (June 1972).
- Roth, H. Daniel, and J. Pierce. "Multivariate Discriminant Analysis of Brollastic Turbidites." *International Journal of Mathematical Geology*, volume 4, number 2 (June 1972).

## National Gallery of Art

- Bullard, E. John. "The Centennial Year of Artist John Sloan." *Smithsonian Magazine*, volume 2, number 7 (October 1971).
- \_\_\_\_\_. "John Sloan as an Illustrator." *American Artist*, volume 35 (October 1971), page 52.
- Bullard, E. John, and David W. Scott. *John Sloan 1871-1951*. Washington, D.C.: National Gallery of Art, 1971.
- Cain, Fred. "Introduction." In *Masters of the Passion: Dürer and Rouault*. Catalog. Los Angeles: University of California, Los Angeles, 1971.
- Campbell, William P. "The American Heritage at the National Gallery of Art." *The Connoisseur*, volume 178 (December 1971), pages 268-276.
- Cooke, H. Lester. *Eyewitness to Space*. New York: Harry Abrams, Inc., 1971.
- \_\_\_\_\_. *Painting Techniques of the Masters*. New York: Watson-Guptill, 1972.
- Feller, Robert L. "Analysis of Pigments." Pages 327-344, in *American Painting to 1776: A Reappraisal*. Charlottesville: University Press of Virginia, 1971.
- \_\_\_\_\_. "Notes on the Chemistry of Bleaching." *Bulletin of the American Group—The International Institute for Conservation of Historic and Artistic Works*, volume 11, number 2 (1971), pages 39-56.
- \_\_\_\_\_. "Scientific Examination of Artistic and Decorative Colorants." *Journal of Paint Technology*, volume 44 (1972), pages 51-58.
- Feller, Robert L., and Catherine W. Bailie. "Solubility of Aged Coatings Based on Dammar, Mastic, and Resin AW-2." *Bulletin of the American Group—The International Institute for Conservation of Historic and Artistic Works*, volume 12, number 2 (1972), pages 72-81.
- Feller, Robert L., and M. Curran. "Lightfast Soluble Colorants." *Bulletin of the American Group—The International Institute for Conservation of Historic and Artistic Works*, volume 11, number 2 (1971), page 15.
- Feller, Robert L., B. Keisch, and M. Curran. "Notes on Modern Pigments." *Bulletin of the American Group—The International Institute for Conservation of Historic and Artistic Works*, volume 12, number 1 (1972), pages 60-62.
- Feller, Robert L., Nathan Stolow, and Elizabeth H. Jones. *On Picture Varnishes and their Solvents*. Revised edition. Cleveland: The Press of Case Western University, 1971.
- Grossman, Sheldon. "An Anonymous Florentine Drawing and the 'So-Called Verrocchio Sketchbook'." *Master Drawings*, volume 10 (1972), pages 15-19.
- Lewis, Douglas. "Romantic Classicism in America: The Full Temple Form." Paper delivered at 13th International Congress in the History of Architecture, Vicenza, Italy, September 1971.
- Oberhuber, Konrad. *I grandi disegni italiani dell' Albertina di Vienna*. Milan: Silvana editrice, 1971.
- \_\_\_\_\_. "Raphael and the State Portrait—II: The Portrait of Lorenzo de' Medici." *The Burlington Magazine*, volume 113, number 821 (1971), pages 436-443.
- Parkhurst, Charles. "A Color Theory from Prague: Anselme de Boodt." *Bulletin of the Allen Memorial Art Museum*, volume 29 (1971), pages 3-10.
- \_\_\_\_\_. "Red—Yellow—Blue, A Color Triad in Seventeenth-Century Painting." *Annual of the Baltimore Museum of Art*, volume 4 (1972), pages 33-39.
- Russell, H. Diane. *Rare Etchings by Giovanni Battista and Giovanni Domenico Tiepolo*. Washington, D.C.: National Gallery of Art, 1972.
- Scott, David W. "Plans and Programmes—The National Gallery's East Building." *The Connoisseur*, volume 178 (December 1971), pages 263-265.

- Scott, David W., and Bullard, E. John. *John Sloan 1871-1951*. Washington, D.C.: National Gallery of Art, 1971.
- White, Christopher. *Dürer: The Artist and his Drawings*. London and New York: Phaidon and Watson-Gupthill, 1972.
- \_\_\_\_\_. "The Dürer Exhibition at Nuremberg." *The Burlington Magazine*, volume 113, number 821 (1971), pages 484-488.
- \_\_\_\_\_. "The Armand Hammer Collection: Drawings." *Apollo Magazine*, new series, volume 95, number 124 (June 1972), pages 456-463.
- Williams, William J. "Architecture." "Bridge," "Building Materials," "Caisson," "Castle," "Cathedral," "Construction," "Construction Equipment," "Empire State Building," "Gothic Architecture," "House," "Tower," *Young Students Encyclopedia*. New York: Funk and Wagnalls, Inc., 1972.
- \_\_\_\_\_. "A 400-year Survey of Italian Stage Design." *Smithsonian Magazine*, volume 2, number 9 (December 1971), pages 38-45.



## Appendix 7

### ACADEMIC APPOINTMENTS 1971-1972

#### Postdoctoral Visiting Research Associates

Asterisks indicate Fellows whose research was supported through a grant for American Indian Historical, Cultural, and Social Studies awarded by the National Endowment for the Humanities for tenure at the Smithsonian Institution.

##### *Program in American History*

Paul Kleppner. Symbols of American politics, 1860-1892, with Dr. Wilcomb E. Washburn, American Studies Program, from 1 September 1971 to 31 August 1972.

Allison W. Saville. American submarine technological development, 1919-1941, with Dr. Philip K. Lundeborg, National Museum of History and Technology, from 1 September 1971 to 31 August 1972.

##### *Program in Anthropology*

James M. Adovasio. The relationship of ethnographic North American textile and basketry techniques to their archeological antecedents, with Dr. Waldo R. Wedel, National Museum of Natural History, from 1 September 1971 to 31 August 1972.

\*Karen I. Blu. Research into the nature and content of Lumbee Indian ethnic identity under conditions of social change, with Dr. William C. Sturtevant, National Museum of Natural History, from 15 September 1971 to 14 June 1972.

\*Raymond J. DeMallie. Cultural and historical studies of the Dakota (Sioux) Indians, with Dr. John C. Ewers, National Museum of Natural History, from 1 October 1971 to 30 June 1972.

\*Jerald T. Milanich. Woodland Pattern Formative cultures of the southeastern United States 1000 B.C. to 1000 A.D., with Dr. William W. Fitzhugh, National Museum of Natural History, from 15 September 1971 to 15 June 1972.

James H. Rauh. Investigation of interrelationships of the Borgia group of Mexican manuscripts and the Maya Codex Madrid, with Dr. Clifford Evans, Jr., National Museum of Natural History, from 1 September 1971 to 31 August 1972.

##### *Program in Environmental Sciences*

Clarke Brooks. Analysis of algal biliproteins, with Dr. Elisabeth Gantt, Radiation Biology Laboratory, from 1 July 1971 to 30 June 1972.

Stephen I. Rothstein. An experimental investigation of host preferences in the brown-headed cowbird, with Dr. Francis S.L. Williamson, Chesapeake Bay Center for Environmental Studies, from 1 September 1971 to 31 August 1972.

##### *Program in Evolutionary and Behavioral Biology, Tropical Zones*

Madeline Andrews. Insular-Continental comparisons of *Anolis* ecology, with Dr. A. Stanley Rand, Smithsonian Tropical Research Institute, from 1 August 1971 to 31 July 1972.

- Jeffrey B. Graham. Studies in the biology of the amphibious clinid, *Mnierpes macrocephalus*, with Dr. Ira Rubinoff, Smithsonian Tropical Research Institute, from 15 September 1971 to 15 June 1972.
- Annette F. Hladik. Comparative studies of tropical forests, with Dr. Martin H. Moynihan, Smithsonian Tropical Research Institute, from 1 July 1971 to 30 June 1972.
- James R. Karr. Comparisons of structure of avian communities in selected tropical areas with emphasis on the Old World Tropics, with Dr. Neal G. Smith, Smithsonian Tropical Research Institute, from 1 July 1971 to 30 June 1972.

#### *Program in Evolutionary and Systematic Biology*

- Thomas D. Eichlin. Revision of the lepidopterous family Aegeriidae of North America, with Dr. W. Donald Duckworth, National Museum of Natural History, from 1 July 1971 to 30 June 1972.
- Richard U. Gooding. Studies of Animals associated with shallow-water diadematid sea urchins in the Pacific and Western Atlantic, with Dr. Roger F. Cressey, Jr., National Museum of Natural History, from 1 December 1971 to 31 November 1972.
- Chong Kun Park. Research in the genera and species of the Pterodectinae (Acarina: Proctophyllodidae), with Dr. Ralph E. Crabill, Jr., National Museum of Natural History, from 1 September 1971 to 31 August 1972.
- Rudolf Schmid. Comparative floral anatomy of the Myrtaceae, subfamily Myrtoinae, with Dr. Richard H. Eyde, National Museum of Natural History, from 1 October 1971 to 30 September 1972.
- Adam Urbanek. Research on ultrastructure of peridermal derivatives in Graptolithina and Pterobranchia and studies on modern evolutionary theories and their application for fossil material, with Dr. Richard S. Boardman, National Museum of Natural History, from 1 August 1971 to 31 January 1972.
- John Utgaard. The classification of cystoporate Bryozoa, with Dr. Richard S. Boardman, National Museum of Natural History, from 1 January 1972 to 30 June 1972.
- Norris H. Williams. Systematic anatomy of the subtribes Laeliinae, Cyrtopodiinae, Catasetinae, Stanhopeinae, Sygopetalinae and Oncidiinae (Orchidaceae), with Dr. Edward S. Ayensu, National Museum of Natural History, from 1 September 1971 to 31 August 1972.
- Richard Winterbottom. The Phylogeny of stomiatoid fishes as evidenced by their myology, with Dr. Stanley H. Weitzman, National Museum of Natural History, from 1 October 1971 to 30 September 1972.

#### *Program in the History of Art and Music*

- Lena Lee. A new study of the problem of the identity of the so-called "Pratyeka Buddha" images in Chinese Buddhist Sculpture, with Dr. Thomas Lawton, Freer Gallery of Art, from 1 January 1972 to 31 December 1972.
- Sonya Monosoff. Research in the history and development of violins and bows, with Mr. John T. Fesperman, National Museum of History and Technology, from 1 October 1971 to 31 August 1972.
- Francis V. O'Connor. Research in the history of American art during the 1930s, with Dr. Joshua C. Taylor, National Collection of Fine Arts, from 1 September 1971 to 31 August 1972.

*Program in the History of Science and Technology*

- Maxine Benson. Advanced documentary editing in the history of science with Dr. Nathan Reingold, The Joseph Henry Papers, from 1 September 1971 to 31 August 1972.
- Bert S. Hall. German technological manuscripts in the age of Leonardo da Vinci, with Dr. Otto Mayr, National Museum of History and Technology, from 1 August 1971 to 31 July 1972.
- Emilie S. Smith. An investigation of the Galenic origins of early Islamic writings on the anatomy of the eye, theories of vision, and the treatment of certain pathological conditions of the eye, with Dr. Sami K. Hamarneh, National Museum of History and Technology, from 1 September 1971 to 31 August 1972.

*Program in Physical Sciences*

- Martin R. Flannery. Theoretical investigation of certain atomic and molecular processes relevant to the earth's atmosphere, stellar and planetary atmospheres, and HI, HII regions of the sun, with Dr. Owen J. Gingerich, Smithsonian Astrophysical Observatory, from 1 March 1971 to 30 September 1971.
- Andrew L. Graham. The major element composition of meteoritic chondrules, with Dr. Brian H. Mason, National Museum of Natural History, from 1 September 1971 to 31 August 1972.
- Stanley A. Mertzman. The geology, petrology, and geochemistry of Lake Yohoa volcanic field, northeastern Honduras, with Dr. William G. Melson, National Museum of Natural History, from 1 September 1971 to 31 August 1972.
- G. Jeffrey Taylor. Petrological and chemical research on lunar samples and theoretical interpretation and research on the metallic minerals in chondritic meteorites, with Dr. John A. Wood, Smithsonian Astrophysical Observatory, from 1 July 1971 to 31 August 1972.

## Predoctoral Visiting Research Associates

*Program in American History*

- Patrick H. Butler III. Study of attitudes toward death and afterlife in the colonial Chesapeake Bay Region as determinants in social, political, and cultural behavior, with Dr. Wilcomb E. Washburn, American Studies Program, from 1 July 1971 to 30 June 1972.
- Susan Falb, Smithsonian Institution-Georgetown University Cooperative Fellow. Studies in American material culture, with Dr. Wilcomb E. Washburn, American Studies Program, from 1 September 1971 to 30 June 1972.
- Yvonne Lange. Santos, the household wooden saints of Puerto Rico, with Mr. Richard E. Ahlborn, National Museum of History and Technology from 1 August 1971 to 30 June 1972.
- Arthur C. Townsend. Pattern and change in the material culture of Junction City, Kansas, between 1890 and 1922, as seen through the life and lens of Joseph Judd Pennell, with Dr. Wilcomb E. Washburn, American Studies Program, from 1 July 1971 to 30 June 1972.
- Lawrence Velten, Smithsonian Institution-Georgetown University Cooperative Fellow. Studies in American material culture, with Dr. Wilcomb E. Washburn, American Studies Program, from 1 September 1971 to 30 June 1972.



*Program in Anthropology*

Mun Woong Lee. Rural North Korea under Communism: a study of sociocultural change, with Dr. Eugene I. Knez, National Museum of Natural History, from 1 June 1971 to 31 May 1972.

*Program in Environmental Sciences*

Edward DeFabo. A biphasic response in the inactivation of some microorganisms by ultra-violet light, with Dr. Walter A. Shropshire, Jr., Radiation Biology Laboratory, from 15 September 1971 to 14 September 1972.

C. John Ralph. Research on the migration of birds, with Dr. Francis S. L. Williamson, Chesapeake Bay Center for Environmental Studies, from 1 July 1971 to 30 June 1972.

*Program in Evolutionary and Behavioral Biology, Tropical Zones*

James W. Porter. Structure and diversity of Panama coral reefs with particular emphasis on those of the eastern Pacific, with Dr. Peter W. Glynn, Smithsonian Tropical Research Institute, from 1 August 1971 to 31 July 1972.

Wayne L. Smith. Population studies of the mysid *Heteromysis actiniae* Clarke living symbiotically with the sea anemone *Bartholomea annulata* Leseur, with Dr. Peter W. Glynn, Smithsonian Tropical Research Institute, from 1 August 1971 to 31 July 1972.

Joseph G. Strauch, Jr. Communal behavior of the Crotophaginae, with Dr. Neal G. Smith, Smithsonian Tropical Research Institute, from 1 August 1971 to 1 March 1972.

Bernice Tannenbaum. The adaptive significance of social behavior in neotropical bats, with Dr. Neal G. Smith, Smithsonian Tropical Research Institute, from 1 August 1971 to 31 July 1972.

*Program in Evolutionary and Systematic Biology*

Theodore Gary Gautier. Cryptostome Bryozoa from the Permian (Leonardian) of the Glass Mountains, Texas, with Dr. Richard S. Boardman, National Museum of Natural History, from 1 July 1971 to 30 June 1972.

Storrs L. Olson. The history, adaptations, and relationships of the fossil Rallidae, with Dr. George E. Watson, National Museum of Natural History, from 1 September 1971 to 31 March 1972.

*Program in the History of Art and Music*

Peter Bermingham. Barbizon art in America: its influence on American painting, 1850-1890, with Dr. Joshua C. Taylor, National Collection of Fine Arts, from 15 June 1971 to 14 June 1972.

Richard N. Murray. A study of figurative mural painting, public and private in the United States, 1890-1920, with Dr. Joshua C. Taylor, National Collection of Fine Arts, from 1 September 1971 to 31 August 1972.

*Program in the History of Science and Technology*

Saroj Kumar Ghose. History of electric telegraphy in the 19th century, with Dr. Bernard S. Finn, National Museum of History and Technology, from 24 May 1971 to 30 June 1972.

Barbara B. Kaplan. The relevance of alchemical and hermetic ideas to 13th and 14th century medicine in western Europe, with Dr. Sami K. Hamarneh, National Museum of History and Technology, from 1 September 1971 to 31 August 1972.

John D. Kazar. The United States Navy and scientific exploration, 1837-1860, with Dr. Nathan Reingold, Joseph Henry Papers, from 1 September 1971 to 31 August 1972.

John T. Kelly. American science of the eighteenth century, with particular consideration of the science curricula of the colonial colleges, and the science of the city of Philadelphia, with Mr. Silvio A. Bedini, National Museum of History and Technology, from 1 September 1971 to 31 August 1972.

Clay McShane. Studies dealing with the reaction of large American cities to the automobile, 1900-1930, with Mr. Don H. Berkebile and Mr. Harold K. Skramstad, National Museum of History and Technology, from 1 July 1971 to 30 June 1972.

Robert Post. Research and study of the career of Charles Grafton Page, with Dr. Bernard S. Finn, National Museum of History and Technology, from 1 September 1971 to 31 August 1972.

### *Program in Museum Studies*

Shelley Fletcher. Special problems in paper conservation, with Mr. Anton Konrad, National Collection of Fine Arts/National Portrait Gallery Conservation Laboratory, from 1 October 1971 to 30 September 1972.

Elaine Sloan. Museum libraries as information systems for professionals and for the general public, with Dr. Russell Shank, Smithsonian Libraries, from 1 September 1971 to 31 August 1972.

### *Program in Physical Sciences*

James Elliot. Investigation of atmospheric fluorescence as a means of detecting transient X-ray phenomena from cosmic sources, with Dr. G.G. Fazio, Smithsonian Astrophysical Observatory, 1 July 1971 to 31 January 1972.

William R. Forman. Study of magnetic field structure in the Crab Nebula, with Dr. R.E. Schild, Smithsonian Astrophysical Observatory, from 1 July 1971 to 30 June 1972.

Richard I. Klein. Studies on the effect of shock waves on the formation of spectral lines in pulsating variable star atmospheres, with Dr. Wolfgang Kalkofen, Smithsonian Astrophysical Observatory, from 1 July 1971 to 30 June 1972.

Robert L. Kurucz. Research in radiative transfer and model stellar atmospheres, with Dr. E.H. Avrett, Smithsonian Astrophysical Observatory, from 1 July 1971 to 30 June 1972.

Charles J. Lada. Research in astrophysics, with Dr. D. Kleinmann, Smithsonian Astrophysical Observatory, from 15 September 1971 to 15 June 1972.

Joseph Schwarz. A study of the formation of interstellar clouds and filaments in the ionized zone created by an ultraviolet radiation burst from a supernova, with Dr. A. Dalgarno, Smithsonian Astrophysical Observatory, from 15 September 1971 to 15 June 1972.

## Graduate and Undergraduate Research and Study Appointments

Asterisks indicate students whose research was supported through grants from the National Science Foundation's Undergraduate Research Participation Program (grants GY8823: Social Sciences and GY9057: Geological Sciences).

*Program in American History*

- Group study project in historical archeology at St. Mary's City, Maryland, supervised by Dr. Wilcomb E. Washburn, Office of American Studies:  
 Rachel Baker, Brown University.  
 Frederick DeMarr, University of Maryland.  
 Ross Kimmel, University of Maryland.  
 Antoinette Lee, The George Washington University.  
 Nancy Nutt, The George Washington University.  
 Richard Schaffer, University of Maryland. Research on development of air transportation from the balloon era to the present, with Mr. Louis S. Casey, National Air and Space Museum.

*Program in Anthropology*

- Geraldine Anderson, University of California, Los Angeles. Investigation of Harrison manuscripts in National Anthropological Archives, with Dr. William C. Sturtevant, National Museum of Natural History.  
 \*Ellison Banks, Wellesley College. Dating Navajo rugs and blankets, with Dr. William C. Sturtevant, National Museum of Natural History.  
 \*Sharon Couch, Bennington College. Reconstructing Mayan Ritual Almanacs, with Dr. James H. Rauh, National Museum of Natural History.  
 Sheri Finkel, Kutztown State College. Establishing Motul dictionary in semantic categories for further ethnographic analysis, with Dr. James H. Rauh, National Museum of Natural History.  
 \*Eva Hoffmann, The City College of New York. Research on the Venus Tables of the Dresden Codex, with Dr. James H. Rauh, National Museum of Natural History.  
 \*Stephanie Nathanson, The City College of New York. Study project correlating Maya daynames with glyphs, with Dr. James H. Rauh, National Museum of Natural History.  
 \*Celia Orgel, University of Chicago. Development of criteria for the biographical dictionary of the *Handbook of North American Indians*, with Dr. William C. Sturtevant, National Museum of Natural History.  
 \*Lisa Rhudy, The George Washington University. Protein-decay analysis to determine the archeological age of burials, with Dr. Donald J. Ortner, National Museum of Natural History.  
 Winfield Swanson, The American University. Ethnographic studies of Eskimos, with Mr. George E. Phebus, National Museum of Natural History.  
 James Wells, University of Maryland. A study of primate basicranial morphology to determine functional relationships with associated nonmorphological variables, with Dr. Lucile St. Hoyme, National Museum of Natural History.

*Program in Evolutionary and Systematic Biology*

- Raymond Bouchard, University of Tennessee. Studies of the crayfish of Tennessee, with Dr. Horton H. Hobbs, Jr., National Museum of Natural History.  
 Meade Cadot, University of Kansas. Research in the systematics and biogeography of Benthic Ostracoda from southern oceans, with Dr. Richard H. Benson, National Museum of Natural History.  
 Jarrett L. Cross. Research on the salt marsh insects of an impoundment on Assateague Island, with Dr. Paul J. Spangler, National Museum of Natural History.



Daryl Domning, University of California, Berkeley. Study of the anatomy of Sirenians, especially myology of *Dugong*, with Dr. Charles O. Handley, National Museum of Natural History.

Christine M. Feely, Stephens College. Research in physiological aspect of marine zoology, with Dr. Victor G. Springer, National Museum of Natural History.

Joel Friedman, Emory University. Research on African primates, with Dr. Richard W. Thorington, Jr., National Museum of Natural History.

\*Andrew Janoff, American University. Ontogenetic study of polypide cycle of skeletal structures in cyclostome bryozoa, with Dr. Richard S. Boardman, National Museum of Natural History.

Sanford Leffler, Washington State University. Research in Smithsonian collection of shore birds, with Dr. Richard L. Zusi, National Museum of Natural History.

\*James McClammer, University of Maryland. Investigation into the ecological succession of Lodgepole pine in the forest of the Bighorn Basin, with Dr. Leo J. Hickey, National Museum of Natural History.

Keith Serafy, University of Maine. Variation in the polytypic sea urchin, *Lytechinus variegatus* in the North Atlantic, with Dr. David L. Pawson, National Museum of Natural History.

#### *Program in the History of Art*

Jerry Adelman, Georgetown University. A study of the art of federal art projects, with Dr. Francis V. O'Connor, National Collection of Fine Arts.

Jocelyn Brown, The George Washington University. A study of the Gellatly Collection, with Mr. Robert T. Davis, National Collection of Fine Arts.

Ellen Meyer, The George Washington University. A study of contemporary American art, with Mrs. Adelyn D. Breeskin and Mrs. Jan I.K. Muhlert, National Collection of Fine Arts.

Peter Munsing, University of Michigan. Development of a study booklet for high school students, Department of Education; Cataloging furnishings, Barney House, with Mr. Darrell L. Sewell and Mr. Donald R. McClelland, National Collection of Fine Arts.

#### *Program in the History of Science and Technology*

James Auerbach, University of Maryland. Research on the social impact of machine tools, with Dr. Otto Mayr, National Museum of History and Technology.

Joe Cameron, Maryland Institute, College of Art. A study of photography in the Washington area, with Mr. David E. Haberstick, National Museum of History and Technology.

\*Lorraine Daston, Harvard University. Research and review of papers of Alexander Dallas Bache, with Dr. Nathan Reingold, Joseph Henry Papers.

\*Donald Hoke, Beloit College. Research into the history of American pocket watches, with Mr. Edwin A. Battison, National Museum of History and Technology.

\*David Hounshell, Southern Methodist University. Research on Elisha Gray, with Dr. Bernard S. Finn, National Museum of History and Technology.

\*Brian Jensen, Virginia Commonwealth University. Research in the Clark Radio collection, with Mr. Elliott N. Sivowitch, National Museum of History and Technology.

\*Marci Kramish, Duke University. Research in medicinal plants and pharmaceutical objects, with Dr. Jon B. Eklund, National Museum of History and Technology.

- \*Maria Quinlan, Smith College. Comparative study of kitchens from 1750, 1850, and 1950, with Mr. Silvio A. Bedini, National Museum of History and Technology.
- \*Warren A. Ramey, Duke University. Bibliography on Naval technology during the American Revolution, with Dr. Philip K. Lundeberg, National Museum of History and Technology.
- Nancy Rexroth, Ohio University. Research on platinum printing and photography, with Mr. David E. Haberstick, National Museum of History and Technology.
- Allan Rhodes, Southern Methodist University. Research in historical model construction, with Dr. Otto Mayr, National Museum of History and Technology.
- Michael Shapiro, Brown University. Research on the Centennial Exposition of 1876, with Mr. Richard H. Lytle, Smithsonian Archives.

*Program in Museum Studies*

- Kermit L. Baumgartner, Jr., Elizabethtown College. A study of regular Army uniforms, 1821-1911, with Mr. Donald E. Kloster, National Museum of History and Technology.
- Donald B. Christman, St. Mary's College of Maryland. Studies of military heraldry and museum collection management, with Mr. Donald E. Kloster, National Museum of History and Technology.
- John Ehrmann, Macalester College. Studies of nineteenth-century Presidential campaign artifacts and literature, with Dr. Wilcomb E. Washburn, Office of American Studies.
- Lynn Felsher, Philadelphia College of Art. Studies in preservation, cleaning, and Collection management of textiles, with Mrs. Grace R. Cooper, National Museum of History and Technology.
- Joel F. Janosky, Syracuse University. Studies of the zoogeography of midwater fishes from Southeastern Pacific Ocean, with Dr. Robert H. Gibbs, Jr., National Museum of Natural History.
- James H. Myersburg. Studies of basic audiovisual techniques, with Mr. Roy V. LaRoche, Office of Exhibits Programs.
- Susan Olsen, University of Arizona. Studies in the conservation of anthropological objects in the collections, with Mrs. Bethune M. Gibson, National Museum of Natural History.
- Charles Potter, Syracuse University. A study of rodent genus *Atlantoxerus* and studies of museum curatorial techniques, with Dr. Henry W. Setzer, National Museum of Natural History.
- George Ronkin, Beloit College. Studies of computer programming and systems analysis, with Mr. Dante Piacesi, Jr., Information Systems Division.
- Linda Southwick, Tufts University. A bibliographic study of tropical marine algae and coral reef ecology with Dr. Arthur L. Dahl, National Museum of Natural History.
- Sharon N. White, University of Pennsylvania. Studies in organizing and cataloging Jewish materials; compiling various bibliographies with Mr. Richard E. Ahlborn, National Museum of History and Technology.

## Appendix 8

### PUBLIC AFFAIRS

#### News Releases Issued

Smithsonian To Keep 3 More Buildings Open Until 9 p.m. through Labor Day	1 July 71
Notable Prints from Smithsonian Collections Show Three Centuries of American Art Mastery	1 July 71
Live Insects Doing Their Thing Daily for Natural History Museum Visitors	8 July 71
NCFA To Show "Romare Bearden: The Prevalence of Ritual"	8 July 71
Photo Contest Held for District Youths; Smithsonian Museum Will Show Top Entries	12 July 71
NASA To Make Formal Presentation of Lunar Module to Smithsonian	12 July 71
Contributions of Black Scientists Outlined in Anacostia Exhibition	15 July 71
Concerts Set for Smithsonian's Museum of History and Technology	15 July 71
Dr. David Challinor Named Assistant Secretary for Science	19 July 71
Registration Open Through August 6 for Associates Summer Courses	21 July 71
Wilson Center Appoints 16 Additional Fellows	28 July 71
Yale Scholar Will Lecture on Contemporary Black Art	28 July 71
Smithsonian Puppet Theatre To Be Closed August 18-20	29 July 71
Smithsonian Will Celebrate 125th Birthday September 26	30 July 71
Smithsonian Exhibit Shows Slovenian Culture in U.S.	4 Aug. 71
Year-Long Survey Offers Picture of "Typical" Smithsonian Visitor	4 Aug. 71
Freer Gallery Announces Retirement of John Pope	9 Aug. 71
Participation Workshops at NCFA Designed To "Make Art Sensible"	9 Aug. 71
Special Program Will Commemorate 100th Birthday of Orville Wright	10 Aug. 71
Thomas Nast Self-Portrait on Exhibit at Smithsonian	12 Aug. 71
Tom Sawyer To Begin Fall Season at Smithsonian's Puppet Theatre	16 Aug. 71
Coast Guard To Hoist 25-Ton Engine From Ship for Smithsonian Display	16 Aug. 71
Freer Gallery To Stage Meyer Memorial Exhibit	19 Aug. 71
Insect Zoo Closing Announced	19 Aug. 71
Smithsonian Museums Break Out in Hives	23 Aug. 71
Langley Medal Will Be Presented to Lt. Gen. Samuel C. Phillips	25 Aug. 71
Spiders Star in New Exhibit at Museum of Natural History	27 Aug. 71
Street Theater Version of "Macbeth" To Be Presented in Museum Courtyard	30 Aug. 71
Angel Finds Even Ancient Greeks Affected by Ecological Problems	31 Aug. 71
National Portrait Gallery Exhibition Salutes Opening of Kennedy Center for Performing Arts	31 Aug. 71
National Collection of Fine Arts To Show Russian Ballet Designs by Boris Anisfeldt	2 Sept. 71
Lecture at Freer to Focus on "Uncommon" Japanese Artist	2 Sept. 71
Professor To Lecture at Art Museum on Exotic 20th Century Stage Decor	2 Sept. 71



Associates Present Free Lecture on Art, Architecture of Russia	3 Sept. 71
Musician To Lecture on Elements of Rock	3 Sept. 71
MHT Post Office-General Store	9 Sept. 71
Early Plastic Products Donated to Smithsonian Collections	13 Sept. 71
Industrial Archeology Conference Set for October 16 at Smithsonian	16 Sept. 71
Smithsonian Seeks Volunteers To Guide School Groups	16 Sept. 71
"The Proposition" To Be Presented at Smithsonian	16 Sept. 71
Smithsonian To Present "Proposition Circus" October 9	16 Sept. 71
Smithsonian Anniversary Day Schedule	17 Sept. 71
Wilson Center Sets October 1 Deadline for Applications	21 Sept. 71
NCFA Announces '72 Exhibition Schedule	22 Sept. 71
Smithsonian Receives Grant for Seminar	22 Sept. 71
Museums Can Bring Together Generations, Dr. Mead Says	23 Sept. 71
Smithsonian, Folklore Society To Open Concert Series October 1	24 Sept. 71
Anniversary Exhibition Chronicles Smithsonian's 125 Years of Growth	24 Sept. 71
National Collection of Fine Arts To Show Lee Gatch Retrospective	27 Sept. 71
Smithsonian Schedules January Opening for Renwick Gallery of Design, Crafts	28 Sept. 71
New Exhibit Shows Changes in Korean Village Culture	29 Sept. 71
Smithsonian Free Film Theatre To Open Fall Season October 6	30 Sept. 71
Lecture on Painter Lee Gatch Will Be Given at NCFA October 30	30 Sept. 71
The Restoration: "Eyesore" to Art Museum	30 Sept. 71
Smithsonian Names 2 Key Staff Members for Renwick Gallery of Design, Crafts	30 Sept. 71
An American Architectural Monument	30 Sept. 71
Chronology of the Renwick Gallery	30 Sept. 71
Smithsonian To Open Bookstore in History & Technology Museum	1 Oct. 71
Concerts Set for Smithsonian's Museum of History & Technology	4 Oct. 71
National Board Established for Smithsonian Associates	4 Oct. 71
Grant Rogers Will Perform at Smithsonian Folk Concert	8 Oct. 71
First Music from Marlboro Concert Scheduled for Nov. 6 at Smithsonian	12 Oct. 71
Smithsonian's Hodgkins Medal Goes to Author Lewis Mumford	13 Oct. 71
Panel Will Discuss Impact of Mechanization of Music	15 Oct. 71
Malvina Reynolds To Perform at Smithsonian November 19	15 Oct. 71
G. Evelyn Hutchinson Named First Browning Award Winner	20 Oct. 71
Freer Gallery of Art Names Lawton Assistant Director	20 Oct. 71
Smithsonian Will Exhibit Appliances Given by Donors Throughout Country	22 Oct. 71
200 Eakins Photographs To Be Shown at NCFA	26 Oct. 71
Smithsonian Publishes First Major Catalog on Art of Black Painter William H. Johnson	26 Oct. 71
Black Painter Being Accorded Major Retrospective at Smithsonian's NCFA	26 Oct. 71
Chinese Blue and Green Art Style To Be Discussed	28 Oct. 71
Symposium on Print Prices To Be Held at National Collection of Fine Arts	28 Oct. 71
Bishop Museum's Gregory Medal Goes to Smithsonian's Fosberg	28 Oct. 71
November Schedule - Free Film Theatre	28 Oct. 71
NPG Opens Exhibition Focusing on Washington's Black Community	29 Oct. 71
Harvard Professor Will Discuss Effect of Herbicides in Vietnam	1 Nov. 71

Statement—Bicentennial Outdoor Museum	5 Nov. 71
Smithsonian Announces Forty-Six Research Appointments for 71-72	5 Nov. 71
Portrait of Religious Leader Joseph Smith Will Be Given to National Portrait Gallery	5 Nov. 71
Carl Larsen Appointed Director of Smithsonian Public Affairs	8 Nov. 71
Russell Bourne Named Consultant on Book Publishing at Smithsonian	10 Nov. 71
Smithsonian Appoints Williams To Set up Jazz Studies Program	10 Nov. 71
Smithsonian Women's Committee To Present Afternoon with Sikkimese Royalty November 17	12 Nov. 71
The Proposition Returns to Smithsonian December 2-6	15 Nov. 71
Smithsonian To Present Proposition Performance for Children December 4	16 Nov. 71
Notice for Correspondents and Photographers—Museum Shops Toys	19 Nov. 71
2 Scientists, 2 Views: Should Man Try To Save Bay Island from Erosion	22 Nov. 71
Smithsonian Art Museum To Exhibit John Steuart Curry Retrospective	22 Nov. 71
"Eccentric, Optimist," Scientist, Spilhaus Keeps Looking to Future	22 Nov. 71
EUREKA! Opens Winter Season at Smithsonian Puppet Theatre	23 Nov. 71
Tapestry Presented to Air and Space Museum	23 Nov. 71
Smithsonian Names Douglass Williams To Traveling Exhibition Liaison Job	24 Nov. 71
Portfolio Day at National Collection Brings Educators to Students Dec. 11	24 Nov. 71
Historic and Beautiful Biblical Manuscripts Among Treasures of Freer Gallery of Art	24 Nov. 71
One-Eyed Flyer Wiley Post Revolutionized Aeronautics	29 Nov. 71
Films by Chris Marker Will Be Shown December 7 in Place of Carson Movie	30 Nov. 71
Wilson Center Sets January 1 Deadline for Applications	2 Dec. 71
Smithsonian Enlists Trust Officers' Assistance in Fund Raising Efforts	3 Dec. 71
Freer Lecturer To Discuss Ottoman Art Production	8 Dec. 71
500 Cast Iron & Tinsplate Toys Going on Display at Smithsonian	13 Dec. 71
National Collection of Fine Arts Will Show Art of Roaring Twenties	15 Dec. 71
Wilson Center, Starting 2nd Year, Appoints Six Additional Fellows	22 Dec. 71
Painting by Important Woman Artist Goes to National Portrait Gallery	22 Dec. 71
Portrait Gallery Acquires Painting of Zachary Taylor	22 Dec. 71
Portrait Gallery Obtains Pastel of Robert E. Lee	23 Dec. 71
Smithsonian Schedules January 29th Opening for New Renwick Gallery of Design, Crafts	28 Dec. 71
Michigan "Friends" Help Smithsonian Preserve Memory of President Arthur	29 Dec. 71
Smithsonian Art Museum To Show Karl Schrag Print Retrospective	4 Jan. 72
Press Preview—Renwick Gallery	4 Jan. 72
MacAgy Named Exhibition Curator for Opening of Hirshhorn Museum	5 Jan. 72
Bust of Architect James Renwick To Be Presented to Smithsonian	6 Jan. 72
Peter Hoover Will Perform in Folklore Concert Jan. 14	6 Jan. 72
Lucy M. Stanton Portrait of "Uncle Remus" Author Given to NPC	7 Jan. 72
Press Preview—Greenland: Arctic Denmark	7 Jan. 72
Freer Gallery To Present Exhibition of Persian Art	11 Jan. 72
Air Force Art on Display in Smithsonian Air Museum	11 Jan. 72



Historic Zuni, Acoma Pottery Will Be Shown in 1st Exhibit Honoring American Indian Arts	13 Jan. 72
Major Opening Exhibition at Renwick Gallery Will Spotlight Furniture Frederick Carder's 80-Year Achievement in Glassmaking To Be Celebrated With Exhibit at Renwick	13 Jan. 72
New, High-Quality Volumes on Freer Art Now Available	13 Jan. 72
Showing of Architectural Photographs at Renwick To Document U.S. Heritage	14 Jan. 72
"Design Is . . ." Exhibition Ranges from Indian War Club to Plastics	14 Jan. 72
Music from Marlboro Artists To Perform at Smithsonian Feb. 5	17 Jan. 72
Eureka! Will Begin Extended Run at Smithsonian Puppet Theatre on March 15	17 Jan. 72
Symbolism in Yuan Paintings Is Subject of Freer Lecture	17 Jan. 72
William Eilers Appointed Director of Smithsonian Environment Office	19 Jan. 72
Portrait Gallery Exhibit To Focus on History of D.C. Black Community	20 Jan. 72
New Mark Twain Portrait Added to NPG Collection	20 Jan. 72
Neighborhood Museum Exhibit Relates History of Anacostia	24 Jan. 72
Eighth Annual Link Lecture To Be Held at Smithsonian	25 Jan. 72
Museum of History and Technology To Show Early Mine Rescue Equipment	26 Jan. 72
Electronic Musician Steve Reich Will Perform at Renwick Gallery	26 Jan. 72
GE Donates Early Carrier-Current Telephone to Smithsonian Museum	26 Jan. 72
Radiation Biology Lab to Sponsor Lectures on Genetics, Evolution	28 Jan. 72
Smithsonian Announces Plans for Maritime Hall at National Museum of History and Technology	28 Jan. 72
Bill Williams Will Perform in Folklore Society Concert	1 Feb. 72
Portrait of Temperance Leader Given to Smithsonian Gallery	1 Feb. 72
History and Technology Museum To Exhibit Memorabilia of Washington and Lincoln	2 Feb. 72
Smithsonian's Annual Folklife Festival Set for June 30 to July 4 in Washington	3 Feb. 72
Background—Japanese Attack Balloon	4 Feb. 72
Portraits of 80 Presidential Candidates Displayed in Major Spring NPG Exhibition	9 Feb. 72
Environmental Law Course To Be Held at Smithsonian	9 Feb. 72
Swedish Environmentalist To Speak at Smithsonian	9 Feb. 72
March 2 Conference To Consider Study of World Growth Problems	14 Feb. 72
Smithsonian To Stage 3 Forums on History, Meaning of Science	15 Feb. 72
National Collection of Fine Arts Stages One-Month Showing of Contemporary Art	15 Feb. 72
Smithsonian Exhibit Will Trace Colorful History of Ballooning	16 Feb. 72
"French Chef" Julia Child Will Give Cooking Demonstration at Smithsonian	23 Feb. 72
Guitar Player Jon Wilcox To Perform at Smithsonian	23 Feb. 72
National Collection of Fine Arts To Show 60 Drawings by Glackens	24 Feb. 72
D.C. Grade School Art To Be Shown at National Collection of Fine Arts	25 Feb. 72
Landscape Show at NCFR Will Honor Centennial of National Park System	28 Feb. 72
Smithsonian To Present "Music from Marlboro"	29 Feb. 72
New Archeological Discoveries Seen in Chinese Film at Freer	3 Mar. 72
Nixon Portrait Unveiled Today	3 Mar. 72



World War II V-Mail Camera Given To Museum of History & Technology	7 Mar. 72
Hirshhorn Museum To Receive \$7 Million in Additional Art Works from Benefactor	7 Mar. 72
Walter Hopps To Organize Exhibition for 36th Venice Art Biennial in June	9 Mar. 72
Textile Designer Will Be Accorded Retrospective by Renwick Gallery	10 Mar. 72
National Collection of Fine Arts Will Exhibit Protest, Put-on Paintings by 2 American Indians	10 Mar. 72
National Collection of Fine Arts To Hold Exhibition as Memorial to Edith Halpert	13 Mar. 72
Freer Lecturer Will Discuss Paintings of "Three Laughters"	13 Mar. 72
Exhibition of Portraits and Campaign Items Will Open May 3 at National Portrait Gallery	17 Mar. 72
National Portrait Gallery Will Spotlight Defeated Presidential Candidates 1796-1968	17 Mar. 72
Koss Stereo Headphones Presented To Museum of History & Technology	17 Mar. 72
Balloon Exhibit Features Unusual Philatelic Items	20 Mar. 72
Woodrow Wilson Center Appoints New Fellows	21 Mar. 72
Woodrow Wilson Center Seminars Will Examine Political System	21 Mar. 72
World War I Fighter Aircraft Highlighted in New Exhibit	21 Mar. 72
Background on the World War I Fighter Plane Exhibit	22 Mar. 72
Musical Weekend in D.C. Offered by Smithsonian	23 Mar. 72
Irwin Will Speak at Freer on Indian Art Masterpiece	23 Mar. 72
Old, New, Electric Ranges Contrast at Smithsonian	23 Mar. 72
National Collection of Fine Arts Showing 17 Oils by Folk Painter	23 Mar. 72
Military Power May Not Be Applicable to World Problems of '70's, Vance Says	24 Mar. 72
Local, National Kite Contests Set for April 1 at Monument	24 Mar. 72
Smithsonian Museums Start Evening Hours	27 Mar. 72
Background—Exhibit Techniques	29 Mar. 72
"Lost" Stuart Portrait of John Adams Acquired by National Portrait Gallery	29 Mar. 72
Graphics by J. Alden Weir To Be Shown at Smithsonian's National Collection	29 Mar. 72
Music by American Indian Composer To Be Played at Smithsonian Museum	29 Mar. 72
Smithsonian Balloon Show Holds Attractions for Numismatists	30 Mar. 72
Wilson Center Sets May 1 Deadline for Applications	31 Mar. 72
Exhibit Surveys Rich Culture of 5 Ancient Arabian Kingdoms	31 Mar. 72
Smithsonian Exhibits Statuette, Plaque for "Fallen Astronauts"	4 April 72
Puppet Theater Will Bring Land of Oz to Smithsonian	4 April 72
British Singers To Perform in Folklore Society Concert	4 Apr. 72
Paul Perrot Named Assistant Secretary for Museum Programs	4 Apr. 72
World Health Exhibit Opens April 7 at Museum of History & Technology	4 Apr. 72
Odd Places Hold Clues to Peril of Toxic Metals in Environment	6 Apr. 72
Air Museum Acquires Bust of Record-Holding Pilot	6 Apr. 72
Wendell Castle To Give Illustrated Talk on Furniture at Renwick Gallery	6 Apr. 72

National Collection of Fine Arts Plans See-and-Do Day for Children on May 13	6 Apr. 72
Colonial Bed Rug on Exhibition at History & Technology Museum	6 Apr. 72
Ceramic Exhibition Shows Traditional Craftsmanship by Contemporary Artists	6 Apr. 72
Folklife Researchers Discover Greece in Downtown Baltimore	6 Apr. 72
Museum Reopens Exhibition of Korean Village Culture	12 Apr. 72
2-Hour Movie Programs on Restoration Scheduled at Renwick Gallery April 18	12 Apr. 72
Lecture on Renwick Gallery Planned at National Collection on May 20th	14 Apr. 72
NPG Historian Speaks at Peale Birthplace Dedication	14 Apr. 72
Folk Musician Bill Vanaver To Perform at Smithsonian	19 Apr. 72
Work of 6 Artists Will Be Exhibited in U.S. Pavilion at Venice Biennale	19 Apr. 72
Rhode Island School of Design Students To Give Sculpture Demonstrations, Show at Art Museum	20 Apr. 72
Smithsonian To Dedicate Urn to First Landscape Architect	21 Apr. 72
National Portrait Gallery's Catalog of American Portraits	21 Apr. 72
Catalog of American Portraits—Fort Lauderdale, Fla.	21 Apr. 72
New Mixed Media Educational Resources Produced for National Portrait Gallery	24 Apr. 72
Nigerian Potter To Give Demonstration of Her Art at Renwick Gallery on May 6	25 Apr. 72
Smithsonian Offers Photos of Ling-Ling, Hsing-Hsing	26 Apr. 72
Presidential Candidates, Pundits, Politicians Invited to Opening of NPG "If Elected..." Show	27 Apr. 72
Smithsonian Handbook Explains How To Start Historical Farms	28 Apr. 72
Climbers Scale Mt. McKinley To Pick Up Trash at 17,000'	28 Apr. 72
Drugs: A Special Exhibition	28 Apr. 72
Wildlife Ecologists Claim Benefit From Some Controlled Forest Fires	1 May 72
Martin Williams Will Lecture on Jazz May 6 at Smithsonian	2 May 72
Indian Writer, Philosopher To Lecture on Gandhi May 10	2 May 72
Archeology of Malta, Western Mediterranean To Be Illustrated in Lecture at Smithsonian	3 May 72
Textiles Display at Renwick Gallery Will Demonstrate "The Swedish Touch"	4 May 72
Tooth Fantasy Exhibit Opens May 19 at Museum of History and Technology	9 May 72
Statement by S. Dillon Ripley, Secretary of the Smithsonian Institution	9 May 72
Ethnic Food Will Be Highlight of Smithsonian Folk Festival	9 May 72
Smithsonian Special Exhibition Puts Drug Use in Social Context	10 May 72
Special Activities To Accompany Smithsonian Exhibition on Drugs	11 May 72
Indians of Southwest Will Demonstrate Cultural Heritage at Folklife Festival	11 May 72
Voices of Bryan, Debs, Al Smith Now Heard at National Portrait Gallery	11 May 72
New Policy Adopted for Investment of Smithsonian Endowment Funds	11 May 72

Curator of Stockholm Craft Museum To Lecture on Modern Swedish Textiles at Renwick Gallery	12 May 72
Guitarist To Play Flamenco Concert at National Collection of Fine Arts	12 May 72
Film Maker L.M. Kit Carson Presents New Work at Natural History Auditorium	12 May 72
Background: Credits	15 May 72
Scholars Meet in Cairo To Focus Attention of Anthropologists on Problems of World Concern	17 May 72
Smithsonian Puppet Theatre Will Bring Back Tom Sawyer	18 May 72
Smithsonian Seeks Student Volunteers To Serve as Tour Guides During Summer	18 May 72
Live Insects To "Perform" for Smithsonian Visitors	18 May 72
Three Citizen Members Appointed to Smithsonian Board of Regents	19 May 72
Arvid Pardo, Lincoln Gordon Named Wilson Center Fellows	23 May 72
John E. Anglim, Smithsonian Exhibits Director, Dies	23 May 72
"Space Art" by Bonestell on Display at Smithsonian	25 May 72
Washington Artist Adam Peiperl To Show Light Sculptures at Smithsonian	25 May 72
Bronze Bust of Walter Reuther Will Be Given to the NPG	25 May 72
Smithsonian, Folklore Society Will Present Concert of Southern Mountain Music June 9	25 May 72
Union Workers Will Demonstrate Skills at Folklife Festival June 30-July 4	30 May 72
Smithsonian To Stage 3rd Annual Boomerang Workshop & Competition	30 May 72
M-G-M, Disney Highlights Recall Heyday of Movie Musicals in Smithsonian Exhibit	30 May 72
Smithsonian Names Miss Scott To Direct Air Museum Library	30 May 72
Smithsonian Personnel Office Offers Learning Lab for Staff	30 May 72
Lorton's Inner Voices, Panel on Historic Perspective Highlights of June Drug Activities at Smithsonian	30 May 72
Private Collectors To Show Prizes in Washington Print Club Exhibit	1 June 72
Ecology, Attica, Africa, Food Are Themes in Art Exhibit by D.C. Junior High Pupils	1 June 72
Public Exhibition of Prints To Be Held at Swiss Embassy	1 June 72
Unusual Annual Report Outlines 1971's Offbeat Natural Events	2 June 72
RCA Gives Grant to Smithsonian for U.S. Art Exhibit in Venice	2 June 72
Former Aide To Give Smithsonian Talk on Frederick Carder, Genius of Glass	2 June 72
What Is a Monotype Print? Art Exhibit To Give Answer	2 June 72
Gold & Silver Botanical Sculptures on Display in Smithsonian Gem Hall	6 June 72
National Collection of Fine Arts To Show 70 Prints, Watercolors of American Fauna	6 June 72
Maryland Police Captain Will Give Own Time To Talk to Smithsonian Visitors about Drugs	9 June 72
Record Number of Acquisitions Added to National Portrait Gallery Collection	9 June 72
Panel at Smithsonian Will Examine Socio-Cultural Patterns of Drug Misuse	13 June 72



Concert of American Music To Be Played in Courtyard of Smithsonian Art Museum	14 June 72
First-Day Stamp Talks To Open at Smithsonian	14 June 72
The Smithsonian's NCFA and Renwick Gallery List Exhibit Schedules	15 June 72
"Ethics of Addiction" Topic of Smithsonian Panel July 10	16 June 72
Rosenblatt Honored	16 June 72
Smithsonian Appoints Euell Acting Assistant Secretary	20 June 72
Early Films of Presidential Candidates Shown Daily at National Portrait Gallery	20 June 72
Special Exhibition of Political Cartoons Now on Display at NPG	20 June 72
Smithsonian Institution Appoints Robert Brooks Assistant Secretary	21 June 72
Films at the Festival of American Folklife	21 June 72
Smithsonian Names Archie Grimmett To Direct Equal Employment Office	22 June 72
Parks Centennial Honored by Show at Smithsonian	22 June 72
Smithsonian Receives Islamic Archives	22 June 72
New Dining Facility at Smithsonian Building Will Offer Moderately Priced Natural Food	23 June 72
National Collection of Fine Arts To Honor Centennial of National Parks with Exhibit	26 June 72
The Marvelous Land of Oz Returns to Smithsonian Puppet Theatre	27 June 72
Statement by George Meany	27 June 72
Smithsonian To Get Plates Marking Confederate Era	29 June 72

### "Radio Smithsonian" Programs

#### JULY 1971

- "What IS the Archives of American Art?" Garnett McCoy, Deputy Director and Archivist. "Behind the Scenes," with Ted Mack, for years the host of the "Original Amateur Hour."
- "How About a Change of Face?" Dr. Blair Rogers, plastic surgeon. "How to Protect Your Painting," Charles Olin, Head Conservator for the National Collection of Fine Arts and the National Portrait Gallery.
- "Government and the Press, Part I." A panel of journalists and government officials discusses their relationship today.
- "Government and the Press, Part II." A panel discussion of possibilities for the future.

#### AUGUST 1971

- "Sing for Your Votes." A short history of campaign songs from 1800 to 1968, with Herbert Collins, Curator of Political History.
- "A Zoo for Insects," Dr. Ronald Goor of the National Museum of Natural History.
- "How Do You Serve Your Soup?" A look at soup tureens with Bill Parker, President of the Campbell Museum.
- "Folk Concert." West Virginian Franklin George and some of his friends play tunes on the dulcimer, the banjo, and the fiddle.
- "The Prevalence of Ritual." Artist Romare Bearden talks about black life as reflected in his work. "Prints as Art," Jacob Kainen, artist and consultant to the National Collection of Fine Arts.

"Concert." Catharina Meints and James Caldwell, violists da gamba, and James Weaver, harpsichord, playing works by Ste.-Colombe and Marais.

## SEPTEMBER 1971

"Creating an Exhibit." How a Smithsonian exhibit comes into being, from conception to realization.

"The 1971 Festival of American Folklife, Part I."

"The 1971 Festival of American Folklife, Part II."

"Charles Lang Freer as Collector." Dr. Thomas Lawton, Curator of Chinese Art at the Freer Gallery of Art, talks about the Gallery's distinguished and dedicated founder. "The Improbable Creator of an Improbable Institution," with Dr. Nathan Reingold, Editor of the Joseph Henry Papers, Smithsonian Institution, on the subject of the germinal early days of the now 125-year-old Smithsonian.

## OCTOBER 1971

"The Gagliano Trio." A Smithsonian concert featuring the Trio in C Minor by Beethoven, performed by Jacqueline Anderson, violin; Lane Anderson, cello; and Helen Hollis, piano.

"A Visit with the Spider Lady." Mrs. Anne Moreton tells how you can learn to love spiders. "What Does a Microlepidopterist Do?" with Dr. Gates Clarke, Senior Entomologist at the National Museum of Natural History.

"Street, Blues, and Gospel Music of Washington, D.C." Excerpts from a concert presented at the Smithsonian.

"You and Your Teeth," with Dr. Lucile St. Hoyme, Curator of Physical Anthropology. "The Center for Short-Lived Phenomena," explained by Robert Citron, Director.

"Can They Survive?" A report on endangered species of wildlife and the efforts being made to protect them.

## NOVEMBER 1971

"Can They Survive? Part II." A report on endangered species of wildlife and the efforts being made to protect them.

"The Concentus Musicus of Vienna," under the direction of Nikolaus Harnoncourt, in a program of music by Bach.

"A Conversation with Dr. Louis S.B. Leakey." The distinguished anthropologist talks about his discoveries and theories concerning the evolution of man.

"The Tower of London and its Treasures," with Howard Blackmore, Assistant Master of the Armouries at the Tower. "Ask a Simple Question..." and get an answer from an expert at the Smithsonian.

## DECEMBER 1971

"Social Customs in the Animal World," with Dr. Martin Moynihan, Director of the Smithsonian Tropical Research Institute. "Spanish Armor in Kansas?" Dr. Waldo Wedel of the National Museum of Natural History discusses his finds.

"Portraits—History or Art?" with Marvin Sadik, Director of National Portrait Gallery.

"Postmark: Smithsonian." Carl Scheele, Curator of Postal History, tells about the reconstructed 19th century post office in operation at the Smithsonian.

"Presidents on Wheels." Some fascinating stories about Presidents and their vehicles, with Herbert Collins, Curator of Political History. "Ecology Is Nothing New," with Dr. G. Evelyn Hutchinson, who has spent his life studying the environment.

"Saving the Asian Lion." An interview with Michael Huxley, Special Assistant to the Smithsonian's Assistant Secretary for Science. "Ask a Simple Question..." and get an answer from a Smithsonian expert.

#### JANUARY 1972

"Concert: The Concentus Musicus, Vienna," under the direction of Nikolaus Harnoncourt, in a program of Italian baroque music.

"The Middle East: What's Really Hapening?" A discussion with Dr. Amos Perlmutter, Fellow at the Woodrow Wilson International Center for Scholars, and Dr. Abdul Said, Professor at the American University School of International Service.

"Folk Concert," featuring Grant Rogers, folksinger, fiddler, and guitarist.

"The Renwick: A Showcase for American Design." Interview with Lloyd Herman, Director of the Renwick Gallery, the newest of the Smithsonian's branches. "Perception and Society," with Dr. Robert Livingstone, Visiting Professor at Brain Research Institute of the University of Zurich.

"Life Among the Chimps." Dr. Jane van Lawick-Goodall talks about some of the striking discoveries she has made about chimpanzees over the past decade.

#### FEBRUARY 1972

"Rodin: True or False." Kirk Varnedoe of the National Gallery of Art explains how you can tell a real Rodin drawing from the many fake ones. "Carbon Dating: What Is It?" Dr. Robert Stuckenrath of the Smithsonian Radiation Biology Laboratory tells how he determines the age of organic remains.

"Folk Concert." A program of old-time fiddle music.

"Exploring the Meaning of Discovery." with Dr. Melvin Jackson, Curator of Maritime Transportation, and Dr. Wilcomb Washburn, Director of the Smithsonian's Office of American Studies.

"Listening to Brain Waves." Dr. Reginald Bickford, a neurophysiologist, discusses and plays recordings of "brain music." "Cotton Comes to America." Mrs. Grace Cooper of the Division of Textiles talks about Samuel Slater, considered the father of the American textile industry.

#### MARCH 1972

"Concert." Malcolm Bilson plays music for the fortepiano.

"A Conversation with Dr. Edward Teller."

"How Birds Communicate," with Dr. Gene Morton of the Smithsonian Chesapeake Bay Center. "The Art of John Held, Jr." Mrs. Held talks about her late husband, the creator of the flapper cartoons of the 1920s.

"Science at the Smithsonian." An interview with Dr. David Challinor, Smithsonian's Assistant Secretary for Science. "Israel: An Archeologist's Dream," with Dr. Avraham Biran, Director of the Department of Antiquities and Museums of Israel, and Dr. Gus Van Beek, Smithsonian Curator of Old World Anthropology.

#### APRIL 1972

"Folk Concert." Alan Jabbour and Pete Hoover playing fiddle and banjo.

"How to Live in a Stately Home and Stay Solvent." An interview with Lord Montagu of Beaulieu, owner of one of England's most impressive mansions. "Ecolibrium." Dr. Athelstan Spilhaus, Chairman, American Association for the Advancement of Science, discusses his thoughts on maintaining an environmental balance.

"Ballooning: Man's First Step into the Air," with Roger Pineau, historian for the Smithsonian's new exhibit on ballooning, and Constance Wolf, holder of the major world's records for women balloonists.



"Concert." The Danzi Woodwind Quintet of Amsterdam.

"Latest Discoveries at Lake Rudolf." Dr. Richard Leakey talks about his newest findings concerning man's ancestors. "A Global View of the Human Environment," interview with Swedish statesman Rolf Edberg.

#### MAY 1972

"Underwater Treasure." Mendel Peterson, Curator of Historic Archeology, discusses treasures lost by Spanish fleets sailing to and from the New World. "What's New in Chinese Archeology?" An interview with Dr. Thomas Lawton, Assistant Director of the Freer Gallery of Art.

"The Talents of Frank Sinatra." Music critic Henry Pleasants explains why he considers Sinatra "a great vocal artist."

"World War I Fliers." General E.P. Curtis, USAF Retired, recalls his experiences as a pilot during World War I. "The French Chef Off Camera." Julia Child discusses her life as TV's leading chef.

"Congress and Foreign Policy." Discussion between Alton Frye, Fellow of the Woodrow Wilson International Center for Scholars, and Henry Brandon, Washington correspondent for the London *Sunday Times*.

#### JUNE 1972

"Concert." Sonya Monosoff, violin, Judith Davidoff, cello, and James Weaver, harpsichord, play violin sonatas of Corelli.

"Terms of the Social Contract." Robert Ardrey, author, discusses the structure of society with Wilton Dillon, Director of Seminars at the Smithsonian.

"The Also Rans." Lillian Miller, National Portrait Gallery Historian, talks about candidates who ran for president—and lost. "Are Heavy Metals Dangerous?" with Dale Jenkins, Director of the Smithsonian's Ecology Program.

"Where is the Melody?" Martin Williams, noted jazz critic and Director of the Smithsonian's Jazz Program, discusses and illustrates jazz fundamentals.

## Appendix 9

### SMITHSONIAN EXHIBITS

#### National Museum of History and Technology

##### PERMANENT EXHIBITIONS

##### Hall of Monetary History and Medallic Art

Beekeeping  
Electricity Phase II

Graphic Arts  
1864 Post Office

##### SPECIAL EXHIBITIONS

A Children's World 1875-1950  
(Sears Toy Collection)  
American Holidays Exhibit—  
Christmas  
Explorers  
Fourth of July  
Labor Day  
Thanksgiving  
Washington/Lincoln

Art and Physics—Adam Pieperal  
Micro Film  
National Parks Centennial (Philately)  
Objects of the Month  
Slovenians in America  
World Health Organization  
Why Teeth?

#### National Museum of Natural History

##### PERMANENT EXHIBITIONS

##### Our Restless Planet (Physical Geology)

##### SPECIAL EXHIBITIONS

Animal Artists  
Arabia Felix Archeology  
Baird Exhibit (Rotunda)  
Fisheries  
Greenland: Arctic Denmark  
(Traveling Exhibit)

Insect Zoo  
Japanese Armor  
Korean Village  
Spanish Burial  
Spider Lady

#### National Air and Space Museum

Air Force Art Show  
Apollo 15 Pre-Flight  
Apollo 16 Pre-Flight  
Ballooning  
Bonestell Art Show  
Fallen Astronaut

Lunar Rover Vehicle  
Mategot Tapestry  
Recent Acquisitions Exhibit  
Vertical Flight  
World War I Fighter Aircraft

## National Collection of Fine Arts

Boris Anisfeldt: 20 Years of Designs  
for the American Theatre

Drawings by William Glackens

Edith Gregor Halpert Memorial  
Exhibition

J. Alden Weir, An American  
Printmaker

Jennie Cell Paintings

John Steuart Curry: Theme and  
Variations

Lee Gatch

National Collection of Fine Arts

Collection (Contemporary Painting  
and Sculpture)

Prints by Karl Schrag

Romare Bearden: The  
Prevalence of Ritual

The Art of John Held, Jr.:  
"The Roaring Twenties"

Thomas Eakins: His Photographic  
Works

Two American Painters:

Fritz Scholder and T.C. Cannon  
William H. Johnson (SITES)

## Renwick Gallery

Architectural Photographs of Frank Roos  
Design Is

Four Continents

Glass of Frederick Carder

Grand Salon (Permanent)

Index of American Design

Jack Lenor Larsen Retrospective

James Renwick of Washington

Pueblo Pottery

Octagon Room (Permanent)

The Swedish Touch

Woodenworks

## Freer Gallery of Art

Christian Art

Eugene and Agnes E. Meyer  
Memorial Exhibition

Exhibition of Japanese Rimpa  
school art

Japanese Art—Recent Accessions

Special Exhibition of Japanese  
Pottery (RAKU Ware)

2500 Years of Persian Art

## National Portrait Gallery

A Glimmer of Their Own Beauty  
If Elected

Portraits of the American Eagle

Temporary Student Exhibit

Washington in the New Era

Washington from Banneker to Douglass

## Anacostia Neighborhood Museum

Accent '71

Evolution of a Community, Part I

Science—Man's Greatest Adventure

## National Zoological Park

The Pandas



## Smithsonian Building (Great Hall)

125th Anniversary

Arts and Industries Building  
(Smithsonian Institution)

Drugs

## Smithsonian Institution Traveling Exhibition Services

A Children's World 1875-1950

(Versions 1, 2, 3)

Contemporary American Drawings V:

Norfolk Biennial

Graphics '71: West Coast U.S.A.

Greenland: Arctic Denmark

Indian Images (Version 2)

James Weldon Johnson

Just Before the War

(Versions 1 and 2)

Lalihela

Movie Palace Modern

Norway Now: 11 Painters

Nutrition in Burundi

Paleolithic: Paintings of France

and Spain

Swiss Posters: The Best of 1969-1970

The Art of the Comic Strip

The Graphic Art of Felix Vallotton

The Monotype: An Addition of One

The Story of a Goblet

UNICEF—Helping the World's Children

Victorian Glass

Vision of Peace in Painting

William H. Johnson

## Appendix 10

### PROGRESS ON BUILDING CONSTRUCTION, RESTORATION, AND RENOVATION

*Air and Space Building.* Construction of a planetarium exhibit started in April and is expected to be completed in July.

*Arts and Industries Building.* Decking the northwest range was completed in February. Painting the east hall and the rotunda was completed in April. In June sewage systems were completed to effect sanitary and storm sewer separation, contracts were let for decking the west-north range, construction of offices on the first floor northwest range was completed, and bids were opened for exterior lighting.

*Freer Gallery of Art.* Sewage systems were completed in June to effect sanitary and storm sewer separation.

*History and Technology Building.* Bids were opened in June to extend the sanitary sewer on the north side.

*Joseph H. Hirshhorn Museum and Sculpture Garden.* Construction continued but various unforeseen delays have extended the expected completion date.

*National Air and Space Museum.* The National Capital Planning Commission approved the design concept for the new building and working drawings were in progress at the close of the year. All possible steps are being taken to complete construction in time for the Bicentennial of the American Revolution.

*National Zoological Park.* No major construction projects were completed during the year. Ground was broken for an annex to the Hospital and Research Building, which is scheduled for completion late in 1972. An emergency construction need arose when the Zoo was designated to receive the two giant pandas. As suitable quarters were not available, some animals were transferred from one of the Delicate Hoofed Stock buildings and two large cages were remodeled. At year's end the entire building and associated outdoor paddocks were being remodeled for the pandas.

The Zoo's perimeter fence was rehabilitated; the old hospital building, originally a cookhouse, was remodeled for use by the Division of Interpretation; necessary changes were made in Paddock 8 to receive the bongos, displaced by the giant pandas; and new fencing was erected for a large crane yard. A trial section of the Bird House roof was repaired to correct leaks; the balance will be completed in fiscal year 1973.

*Natural History Building.* In April a contract was awarded to expand the Library's facilities and completion is expected in July.

*Renwick Gallery.* In January work was completed on replacing sidewalk and stairs, providing exterior lighting, cleaning and sealing main stone staircase, altering and renovating a portion of the interior, providing glass etching for main entrance, marbleizing main stairwell, painting interior and exterior, and birdproofing the building. In May, manufacture of an ornamental railing for the roof was completed and exterior brickwork was cleaned.

*Silver Hill Facility.* In June bids were opened for improvement of the sewage system, a contract was awarded for construction of the Ramsey Building, and erection of a wood-frame structure in Building 15 for storing musical instruments was started with completion expected in July.

*Smithsonian Institution Building.* In June sewage systems were completed to effect sanitary and storm sewer separation and bids were opened for exterior lighting.

## Appendix 11

### VISITORS TO THE SMITHSONIAN INSTITUTION DURING FISCAL YEAR 1972

<i>Month</i>	<i>Smithsonian Institution Building</i>	<i>Arts &amp; Industries Building</i>	<i>Natural History Building</i>	<i>Air &amp; Space Building</i>	<i>Freer Gallery of Art</i>	<i>History &amp; Technology Building</i>
July . . . . .	113,353	282,174	384,348	213,316	26,286	991,398
August . . . . .	109,696	333,831	405,419	239,506	28,955	884,735
September . . . .	44,222	128,100	175,862	88,981	14,544	335,171
October . . . . .	57,681	133,853	202,686	87,830	19,232	415,308
November . . . .	54,729	122,781	234,469	72,490	13,703	354,048
December . . . . .	25,011	73,946	140,230	32,817	13,029	269,092
January . . . . .	35,655	77,601	152,484	46,906	12,725	277,121
February . . . . .	27,753	82,438	169,270	66,397	13,226	299,451
March . . . . .	61,176	164,939	282,872	114,270	22,627	498,257
April . . . . .	107,093	367,519	496,320	141,638	25,032	978,728
May . . . . .	89,024	271,276	397,078	Closed	18,901	747,351
June . . . . .	92,629	260,834	363,533	Closed	21,637	739,713
Totals	818,022	2,299,292 <sup>1</sup>	3,404,571	1,104,151 <sup>2</sup>	229,897	6,790,373 <sup>3</sup>

<i>Month</i>	<i>Fine Arts &amp; Portrait Galleries</i>	<i>Renwick Gallery</i>	<i>National Zoological Park</i>	<i>Anacostia Neighborhood Museum</i>	<i>Totals</i>
July . . . . .	24,663	—	695,190	3,712	2,734,440
August . . . . .	18,224	—	650,850	5,086	2,676,302
September . . . . .	18,186	—	264,574	3,576	1,073,216
October . . . . .	25,241	—	313,141	5,033	1,260,005
November . . . . .	22,819	—	308,093	4,922	1,188,054
December . . . . .	17,931	—	84,178	9,654	665,888
January . . . . .	20,491	11,814	81,340	7,467	723,604
February . . . . .	16,270	29,576	171,124	7,682	883,187
March . . . . .	20,071	21,524	457,312	13,788	1,656,836
April . . . . .	20,364	16,676	957,402	6,393	3,117,165
May . . . . .	23,602	12,547	1,160,138	4,974	2,724,891
June . . . . .	18,334	12,744	699,796	2,691	2,211,911
Totals . . . . .	246,196	104,881 <sup>4</sup>	5,843,138	74,978 <sup>5</sup>	20,915,499 <sup>6</sup>

<sup>1</sup> Increase due to extended night hours and to the wide interest in new exhibits opened during the year, including: the balloon and World War I halls, the drug exhibit and its associated activities, and the lunar module.

<sup>2</sup> Decrease due to building being closed in May and June for installation of planetarium exhibit.

<sup>3</sup> Increase partially due to popularity of Headsville, West Virginia, Post Office Special Exhibit.

<sup>4</sup> Gallery opened in January 1972.

<sup>5</sup> 40,357 adults and children visited museum; the mobile unit was viewed by 34,621 children at their schools.

<sup>6</sup> Increase of 7,114,291 visits is partially due to the Folklife Festival and to the inclusion of visits to the National Zoological Park and the Anacostia Neighborhood Museum. This total does not include over 4,000,000 persons who visited the Smithsonian Institution Traveling Exhibition Service's displays in museums and educational institutions throughout the United States and Canada.







1.1:

973



SMITHSONIAN  
YEAR  
1973









S. Dillon Ripley, Secretary of the Smithsonian Institution, and three Secretaries Emeritus of the Institution at the celebration of the Fiftieth Anniversary of the Freer Gallery of Art, 2 May 1973. The Secretaries and their terms of office, reading from left to right, are Leonard Carmichael (1953–1964), S. Dillon Ripley (1964– ), Charles G. Abbot (1928–1944), and Alexander Wetmore (1945–1952). Photograph by Margaret Thomas, courtesy *The Washington Post*.



# Smithsonian Year 1973

ANNUAL REPORT OF  
THE SMITHSONIAN INSTITUTION  
FOR THE YEAR ENDED 30 JUNE 1973



SMITHSONIAN INSTITUTION PRESS

City of Washington

1973

SMITHSONIAN PUBLICATION 5013

Library of Congress Catalog Card Number 67-7980

# The Smithsonian Institution

The Smithsonian Institution was created by act of Congress in 1846 in accordance with the terms of the will of James Smithson of England, who in 1826 bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." In receiving the property and accepting the trust, Congress determined that the federal government was without authority to administer the trust directly, and therefore, constituted an "establishment," whose statutory members are "the President, the Vice President, the Chief Justice, and the heads of the executive departments."

## *The Establishment*

RICHARD M. NIXON, *President of the United States*  
SPIRO T. AGNEW, *Vice President of the United States*  
WARREN E. BURGER, *Chief Justice of the United States*  
WILLIAM P. ROGERS, *Secretary of State*  
GEORGE P. SHULTZ, *Secretary of the Treasury*  
JAMES R. SCHLESINGER, *Secretary of Defense*  
ELLIOT L. RICHARDSON, *Attorney General*  
ELMER T. KLASSEN, *Postmaster General*  
ROGERS C. B. MORTON, *Secretary of Interior*  
EARL L. BUTZ, *Secretary of Agriculture*  
FREDERICK B. DENT, *Secretary of Commerce*  
PETER J. BRENNAN, *Secretary of Labor*  
CASPAR W. WEINBERGER, *Secretary of Health, Education, and Welfare*  
JAMES T. LYNN, *Secretary of Housing and Urban Development*  
CLAUDE S. BRINEGAR, *Secretary of Transportation*



# Board of Regents and Secretary

30 June 1973

*Presiding Officer ex officio*

RICHARD M. NIXON, *President of the United States, Chancellor*

*Regents of the Institution*

WARREN E. BURGER, *Chief Justice of the United States, Chancellor*

SPIRO T. AGNEW, *Vice President of the United States*

J. WILLIAM FULBRIGHT, *Member of the Senate*

HENRY M. JACKSON, *Member of the Senate*

HUGH SCOTT, *Member of the Senate*

GEORGE H. MAHON, *Member of the House of Representatives*

WILLIAM E. MINSHALL, *Member of the House of Representatives*

JOHN J. ROONEY, *Member of the House of Representatives*

JOHN PAUL AUSTIN, *citizen of Georgia*

JOHN NICHOLAS BROWN, *citizen of Rhode Island*

WILLIAM A. M. BURDEN, *citizen of New York*

ROBERT F. GOHEEN, *citizen of New Jersey*

CRAWFORD H. GREENEWALT, *citizen of Delaware*

CARYL P. HASKINS, *citizen of Washington, D.C.*

A. LEON HIGGINBOTHAM JR., *citizen of Pennsylvania*

THOMAS J. WATSON, JR., *citizen of Connecticut*

JAMES E. WEBB, *citizen of Washington, D.C.*

*Executive Committee*

WARREN E. BURGER, *Chancellor (Board of Regents)*

WILLIAM A. M. BURDEN

CARYL P. HASKINS

JAMES E. WEBB (*Chairman*)

S. DILLON RIPLEY

ROBERT A. BROOKS

DAVID CHALLINOR, *Assistant Secretary for Science*

CHARLES BLITZER, *Assistant Secretary for History and Art*

JULIAN EUELL, *Acting Assistant Secretary for Public Service*

PAUL N. PERROT, *Assistant Secretary for Museum Programs*

T. AMES WHEELER

*The Secretary*

*Under Secretary*

*Assistant Secretaries*

*Treasurer*

# Contents

The Smithsonian Institution .....	v
Board of Regents and Secretary .....	vi
Statement by the Secretary .....	1
Financial Report .....	16
Science .....	45
National Museum of Natural History .....	46
National Air and Space Museum .....	66
Smithsonian Astrophysical Observatory .....	72
Smithsonian Tropical Research Institute .....	77
Radiation Biology Laboratory .....	84
National Zoological Park .....	86
Office of Environmental Sciences .....	91
Chesapeake Bay Center for Environmental Studies .....	95
Center for the Study of Man .....	96
Smithsonian Science Information Exchange, Inc. ....	97
Fort Pierce Bureau .....	98
History and Art .....	100
National Museum of History and Technology .....	104
Archives of American Art .....	117
Freer Gallery of Art .....	119
National Collection of Fine Arts .....	120
National Portrait Gallery .....	124
Joseph H. Hirshhorn Museum and Sculpture Garden ..	127
Cooper-Hewitt Museum of Decorative Arts and Design ..	133
National Armed Forces Museum Advisory Board .....	136
Joseph Henry Papers .....	137
Office of American Studies .....	138
Office of Academic Studies .....	139
Smithsonian Institution Archives .....	140
Office of Seminars .....	141
Special Museum Programs .....	143
Smithsonian Institution Libraries .....	144
Conservation-Analytical Laboratory .....	145
Smithsonian Institution Traveling Exhibition Service ..	146
Office of the Registrar .....	147
Office of Exhibits Programs .....	147
National Museum Act Program .....	148
Public Service .....	150
Smithsonian Associates .....	151
Office of Public Affairs .....	153
Office of International Activities .....	154
Division of Performing Arts .....	155
Anacostia Neighborhood Museum .....	158
<i>Smithsonian</i> (magazine) .....	160
Smithsonian Institution Press .....	161

Reading is Fundamental, Inc. ....	162
Office of Elementary and Secondary Education .....	163
Belmont Conference Center .....	164
Administrative Management .....	165
Support Activities .....	165
International Exchange Service .....	172
National Gallery of Art .....	174
John F. Kennedy Center for the Performing Arts .....	177
Woodrow Wilson International Center for Scholars .....	182

## Appendixes

1. Members of the Smithsonian Council, 30 June 1973 .....	184
2. Smithsonian Associates Membership, 1972-1973 .....	186
3. Academic Appointments, 1972-1973 .....	194
4. National Museum Act Grants, 1972-1973 .....	204
5. Smithsonian Foreign Currency Program Grants Awarded in Fiscal Year 1973 .....	207
6. List of Publications Produced with Smithsonian Foreign Currency Support Since the Inception of the Smithsonian Foreign Currency Program .....	210
7. Public Affairs .....	223
8. Publications and Selected Contributions of the Smithsonian Institu- tion Staff in Fiscal Year 1973 .....	235
9. Publications of the Smithsonian Institution Press in Fiscal Year 1973 .....	300
10. Smithsonian Exhibits .....	307
11. Progress on Building Construction, Restoration, and Renovation ..	310
12. Visitors to the Smithsonian Institution During Fiscal Year 1973 ....	312
13. Staff of the Smithsonian Institution, 30 June 1973 .....	313



Statement of the Secretary  
S. DILLON RIPLEY



## Look Backward, Lest You Fail To Mark the Path Ahead

THESE WORDS ARE USEFUL to remember when you are walking in the woods. If you keep a line of sight backwards on the trail along which you have come, leaving various prominent objects in view, or perhaps blazing the tree trunks, it is often possible to get a straight bearing forward. It sometimes seems as if we were all in the woods thinking about the Bicentennial year 1976. What is the path ahead? Where are we going and where have we come from?

It might be useful to think about what happened in the Centennial year of 1876. By 1873 there was considerable agitation in the country to hold a great World's Fair to commemorate the hundredth anniversary of the Declaration of Independence. In January 1874, President Ulysses S. Grant authorized the creation of a Centennial Board from the Departments of the Treasury, War, Navy, Interior, Postmaster General, Agriculture, and from the Smithsonian to plan a federal exhibition at Philadelphia. Foresightedly as always, Joseph Henry some years before, writing on the Crystal Palace Exhibition of 1851, had jotted down some unpublished notes:

It is highly important that we should be truly represented at the great exhibition but by the proper men and well selected articles. As a general rule new countries like ours are too much occupied in developing their immediate resources to devote much thought to the progress of the world in arts and civilization, but this is not the case with this country. We have from the first kept a keen eye on every discovery of science and every invention in art.

He goes on to warn against our tendency to arrogate undue credit to ourselves in improving and refining inventions which may belong to others, and warns that our representatives,

should be well acquainted with what has been actually accomplished as well as with our deficiencies in order that the first may be properly exhibited without any over or under statement which might tend to lessen the effect intended to be produced.

This could be a good moral for today. No "puffs" for America, please.

Following the planning of the Centennial Board, a request to the Congress for an appropriation produced an authorized budget



of about half what had been thought necessary, to the total sum of \$505,000. In addition to preparing the exhibits, this money was to include up to \$150,000 for the construction of a building in Philadelphia to house the exhibition. A building was erected for \$60,000 plus landscaping costs, containing 102,000 square feet of which about a quarter was assigned to the exhibits of the Smithsonian and its subsidiary organization, the U.S. Fish Commission exhibits.

The exhibition covered the agricultural and the mineral kingdoms of the United States, showing the Nation's resources as then understood, as well as the animal resources ranging from fish, whales, and seals to the game animals and birds of the continent, and their method of capture as well as the products to be made from them, extending from food to fertilizer, all to sustain human life. In addition to fur, feathers, bones, teeth, and useful oils to be derived from these resources, the clothes and equipment of the hunters whether commercial or amateur were shown. The fish collections were most elaborate and included plaster casts of species, realistically colored, as well as a special feature under the management of a Mr. E. G. Blackford, a refrigerator covered with a glass top in which fresh fish "from all portions of the United States" were kept and changed every day so that some of the restaurants on the grounds could take the fish at the close of the day and "serve them up to those calling for them."

An important part of the exhibit, done in collaboration with the Indian Bureau of the Interior Department consisted of an illustration of the past and present condition of the native tribes of the United States. Ethnologists and anthropologists, including Major J. Wesley Powell, prepared collections especially for the Centennial including archaeological remains from tribes from such places as the southeast coast of California, that had already become extinct, as well as living tribes from as far north as the Haida territory, from whence a canoe was procured "60 feet long, 8 feet wide, and 4 feet high, cut from a single log of cedar, profusely ornamented with carvings and paintings."

It had originally been proposed that representatives of living Indian tribes in family groups would be brought to Philadelphia with their own clothing, utensils, and dwellings to create a temporary community on the Centennial grounds where they could all carry on their various occupations, including their "aboriginal" arts from pottery and silver to the dressing of buffalo hides. Apparently lack of funds prevented what might have been a useful demonstration indeed to the aboriginal Easterners of the skills

and high art of the Indians.

As Professor Baird pointed out in the Smithsonian Report for 1875, "it is quite reasonable to infer that by the expiration of a second hundred-year period of the life of the American republic [namely 1976] the Indians will have entirely ceased to present any distinctive characters, and will be merged in the general population."

Despite the lack of living Indians, the Centennial exhibit ended up being a great success. It was a World's Exposition in truth. It exhibited for all to see the resources of our fair land, ready to be developed and utilized by man, the chosen instrument of the Creator. Fin, fur, and feathers were all at his disposal, and like a cupbearer of the gods, of Ceres, Mr. Blackford opened his refrigerator each evening and dispensed the natural products of the seas and lakes for gustatory delectation. And so out of the more than two hundred varieties shown, we can imagine cod and haddock, salmon and lake trout being trundled off to the local restaurants on the Centennial grounds.

It was all an immensely popular exhibit, and lasted for six months, after which the Smithsonian received more than fifty car loads of material from a number of states and territories of the U.S.A. as well as thirty-four foreign nations. Subsequently Congress appropriated \$250,000 to build a building adjacent to the Smithsonian building on the Mall to house this vast increase of objects to the collections of the National Museum, and also approved subsequent donations of duplicate specimens to educational and industrial establishments throughout the United States.

So much for the World's Fair of 1876, which appears to have captured the imagination of the American people. Many of the objects are still on exhibition in Washington. In 1966, President Johnson created an American Revolution Bicentennial Commission to foretell and plan the events surrounding the year 1976. (From an historical point of view, the Smithsonian views the commemoration of the Revolution as extending over a period of years, at least from the Virginia Declaration of Rights of 1776 on to Yorktown in 1781.) The Commission this time was an amalgam of presidential appointees from private life, and *ex officio* heads of departments, such as State, Commerce, Health, Education, and Welfare, and Interior, as well as agencies such as the General Services Administration, the National Endowment of the Arts and Humanities, the Library of Congress, and, finally, the Smithsonian. Three chairmen have served this Commission, the first a museum administrator, the second a university president, and the third a business executive.



The appointed members were often distinguished historians like Katherine Drinker Bowen and Daniel Boorstin, or people well versed in the management of tourists and their gustatory needs like the fine and dedicated George Lang, lineal descendant of Mr. Blackford. Then there were administrators of historic sites like the then-Director of the National Park Service, George Hartzog, or the equally dedicated James Biddle, President of the National Trust for Historic Preservation.

With the best will in the world the Commission has now foundered. The first blow was resources, for the Congress did not allot funds to the embryo Commission for two years. The second blow to the Nation, in retrospect, was that it was firmly decided that there would be no World's Fairs in 1976. A World's Fair by the latter part of the Twentieth Century, far from being the 1876 concept of a proud display of technological mastery of a new continent evoking pride and patriotism from everyone, had degenerated into hard-sell show of Disneyland proportions with vast commercial companies vying with each other to capture fleeting segments of tourists' attention with razzle-dazzle multimedia advertising. The Bicentennial Commissioners in solemn assembly listened to proposals for multibillion-dollar expenditures by such diverse centers as Boston, Miami, Washington, and Dallas. Philadelphia, an obvious choice, teetered on the brink of a fair, any sort of fair, a World's Fair or a Philadelphia Fair, but finally found that the citizens of the city itself were against the idea. All proposals were eventually politely turned down. Not only was the Nation at war, but the divisiveness of the times was against the lollipop and confetti image of a World's Fair, and no one could face up to such vast and untidy budgets.

Why then would I say that giving up the idea of a World's Fair was a blow? Because time has seemed to prove the truth of what a tea planter said to my wife in India in the nineteen fifties, "Why can American only sell goods and not themselves?" He was speaking about the flood of cheaply produced colorful peasant-directed literature in native tongues flooding through the coolie lines in India from Russian sources, so effective in relating the simple peasant life of the Socialist Republics to the simple peasant lives of Indian tea workers. American life is at such an unimaginable standard compared to over seventy-five percent of the rest of the world that we have no truths to tell such people. We can only sell them objects or foodstuffs. We cannot sell ideas. In the same way, we are finding difficulty in listening any more to our own prophets. Who are they and where are they? Truth is a revolutionary kind



of thing. We do not deal any more in revolutions, because we have garnered more objects to ourselves than we know what to do with, we have not only conquered the continent with our technological skill but firmly enslaved it, and unlike Professor Baird's prophecy, the Indians are still on the reservations. We have gotten pretty much what we were striving for one hundred years ago, and in the pursuit of skills, ease, and happiness have come perilously near to losing our faith.

In retrospect, then, I, as a Commissioner, might well have settled for another World's Fair. After all what is the Fourth of July all about? We celebrate it with a holiday, with speeches, band concerts, hot dogs, a day at the beach or a day at the Smithsonian's Folk Festival, and end up with a fireworks display. Why not? If life itself has become something of a put-on, as the young would have us believe, and truth is no more with us, why not just try to provide a good time for as many foot-sore tourists as possible and celebrate the occasion with a big bang and a bust. One good hangover deserves another. But the Commission, including myself, voted down the idea, feeling that solemnity decreed against it, and that sobriety must be the watchword in such austere times. Thus several years later, and awaiting the formation of still another Commission (the first one having been disbanded as an expression of governmental displeasure), there is no sensible concept of what people will find themselves driving to in the summer of 1976.

In any case the Smithsonian knows, as I pointed out last year, that some thirty-odd million tourists will find themselves inexorably driving to Washington, D.C., in the year 1976. They want objects to look at, not vague and wordy evocations of ideas or even ideals. The Smithsonian and its co-workers in the vineyard of providing something for everyone in Washington, the National Park Service, the Library of Congress, the National Archives, and all the wonderful smaller galleries and cultural centers of the Nation's capital, know that vast crowds of quiet, orderly, decent people will be coming, people who still make up the heart and soul of our country, as well as our neighbor countries on both sides of the oceans. They have faith, *mirabile dictu*, and in them we are renewed. We see them in all their splendour and diversity for what they are. We see their honest awe, their love of things, and their reverence for history, despite the scoffing of the literati. Teachers are today the first to admit that they have lost a great deal of their own faith in what they are teaching. Academia is suffering from a hangover and a new-found inferiority complex. The world of teaching today is itself in the woods, and as history

is not being seriously taught anymore in most places, there is no way of finding directions by looking backwards for tree blazes in order to see if the pathway lies ahead or somewhere off in a circle.

In this uncertain climate the Smithsonian is looking ahead firmly toward our own objectives. We can teach the truth as we know it, sticking to our lathe, being ever mindful of the past, in fact, revering the past for the truths it tells us of the path ahead. And so in the end we are producing our own Bicentennial Fair right in Washington, without razzle-dazzle, without what Joseph Henry termed "over statement," without all the gushy pseudo-emotionalism of the advertising media that surrounds public entertainment today. For example, we are preparing a comprehensive exhibit in the National Museum of History and Technology on the multiplicity of our peoples, shown against the backdrop of immigration. Who came here and when and how? What were they like? What did each element provide for the warp and woof of that tapestry which is ourselves? What were the unities, the divisions of that coming, and to what extent are the Old World's ways which they brought with them still discernible? There is so much to learn about the truth of this country, so much still to be told. Such truth should provide us with insights about the future. We can use them as markers to chart the course ahead. We can of course only delineate these things, but in their exposition there is a message which can be absorbed as a teacher teaches. There is also help to reinforce faith and turn away lies. If lies can be put in perspective, surely the truth is not far away, and without revolution.

In a sense this exhibit about the diversity of our peoples is reflected in most of the Smithsonian activities, beginning in this past year and continuing under our program until at least 1981. The National Portrait Gallery opened an exhibit on the black in the Revolution, *The Black Presence in the Era of the American Revolution, 1770-1800*, which received high acclaim. With this exhibition, the first of a whole program of exhibits geared to 1976, went a masterful work of scholarship, a catalogue by Professor Sidney Kaplan of the University of Massachusetts, which stands by itself as a dissertation on the subject. Next year's exhibit in the sequence is to be *In the Minds and Hearts of the People: Prologue to Revolution, 1760-1774*, with a catalogue by Professor Lillian B. Miller.

The National Collection of Fine Arts has continued its thoughtful series of exhibits in the history of American art. As Hilton Kramer said, speaking of one of the exhibits last year, "Under the directorship of Joshua C. Taylor, the National Collection has



emerged as our most responsible museological custodian of American art, addressing itself to those disinterested tasks of scholarship and connoisseurship that have been spurned by more fashion-conscious museums elsewhere." He was referring to the exhibit, *Alfred H. Maurer, 1868-1932*.

Another exhibit which received acclaim was *The Hand and the Spirit*, which was a pioneer exploration of American religious art. In this new-found tradition of quiet and assured competence, the NCFA plans *Painting and Sculpture from the Pacific Northwest* for next year, leading to an understanding of the immense range and strengths of American art. No finer undertaking in its field could be devised to celebrate the Nation's first two hundred years.

This past year the National Gallery of Art continued a tradition of showing archaeological objects as art, this time in the "American" field, with a seminal show of arts of the Northwestern Indians and Eskimos. I did not see the "Haida canoe, 60 feet long, 8 feet wide, and 4 feet high . . . profusely ornamented," but perhaps size was a consideration? In any case, Haida objects were there demonstrating once again the difficulty of discussing such art as "aboriginal." The line between an object as art and an object as a utensil or a religious vessel is a transparently slippery one, over which historians of art feel concerned lest their discipline become watered by subjectivism or the easy assimilation of questionable truths. But to the audience no matter. Both the aboriginal of yesterday or the aboriginal in a business suit of today may be possessed of an innate sense of line and economy of design which produces a satisfactory esthetic reaction. These shows are wonderful to experience.

This is the Fiftieth Anniversary of the Freer Gallery of Art, "the aristocrat of American museums," as John Canaday has described it. The Freer is the antithesis of the noisy, something-for-everybody art gallery of today, a fashion into which so many of the largest art galleries are slipping. How fortunate for Washington and for the Smithsonian that we have a Freer.

The first of the Freer's "Fiftieth" was a splendid Japanese show of Ukiyoe painting, with a magnificent catalogue underwritten by friends. At the dinner celebrating the occasion, the formulation of a group of "Friends of the Freer" was announced, to help that gallery seek a modest, largely below-ground addition for temporary exhibits and additional work in curation and conservation. The Freer will have its mind on '76, as will the Hirshhorn, scheduled to be open within the year.

The addition of the National Air and Space Museum to our "museum mile along the Mall" will help enhance the appropriate



Bicentennial Fair that Washington will be that summer of 1976. The history of the conquest of air and space is one of America's proudest accomplishments in the years since the Centennial Exhibition. The exhibits planned for that great building will justify our intuitive feeling that people are eager to look at objects, to savor their meaning, and to come away with the sense of having brushed against history. This is a kind of teaching, a transmission through the stuff of material culture, of a sense of reality and consequent excitement which leaves its mark, a step along the learning process.

The central axis of the Arts and Industries building, as we call that 1879 tribute to the solicitude of Congress toward the artifacts brought back from Philadelphia in all those freight cars, will be restored to appear as it mirrored the Centennial. It will be a delightful as well as an instructive exhibition of where we were in 1876, what our accomplishments represented, what our taste had become, and what the priorities of the time were. In addition the Smithsonian plans, in collaboration with foreign nations and State bicentennial groups, a series of exchange and traveling exhibits which will circulate outside Washington. Small exhibits and kits are also planned to be available for communities across the country planning their own Bicentennial celebrations. We hope that these kits will be financed in collaboration with the National Endowments on the Arts and Humanities, as part of the support that the Endowments are planning for the nationwide observance. For certainly many hundreds of smaller cities and towns will be wanting to have their own celebration, their own fun, recreate their own sense of time.

To add to the eight museums that will then line the Mall there will be a two- to three-month Folk Festival of living performers, describing the persistence of "old ways in the New World," with sample troupes from countries abroad, as well as groups from regions of this country, making things, playing folk and ethnic music, and showing regional variations. Above all there will be many native Americans demonstrating their traditional skills in crafts, arts, music, and the dance. Indian folklore among the tribes will be described by native American specialists.

And so one hundred years later, the Smithsonian will be able to fulfill the thwarted hopes of Professor Baird for the Philadelphia Centennial. As he had said at the time, "There is reason . . . to believe that no feature on that occasion would be more interesting to our own people and to foreign visitors than [this one]."

Thus we in the Smithsonian, with the help of the Park Service, and the participating agencies which will be having exhibits, sense

that Washington will be a world's fair in 1976. It will just happen that way. It will be an endlessly fascinating series of exhibits, live as well as automated and still, that will present a panoramic view of American life to thirty millions of peoples of the globe. In the process *ideas* will be conveyed, for we won't be *selling* anything. Looking back, we think we see our way out of the woods. If there is to be a slogan for the event let it be, —Let us prepare at this Bicentennial for our Tricentennial. And if there is to be a Tricentennial at all, let us hope that by that time the Smithsonian will be recognized for what it is, the delineator of a continuous chain.

Dean Sayre gave a moving address at the Memorial Service for the late President Truman at the Washington Cathedral in January last. He said, "Like a great chain are the generations of man, linked across the endless span of time."

Could we not complete the chain of museums on the Mall in Washington with a final museum, a museum of the Family of Man? In such a museum we could perhaps transmit something that has eluded museums as collections of objects. We could show the concept of the creations of the spirit of man, the development of ideas which arise in the human species wherever it happens to exist. Could we show the unity of man as an explorer of ideas—in art, science, invention—all the stuff of culture, moved by spirit, which occurs in our species no matter how diverse our environments?

This preoccupation with 1976 has been much in our thoughts the past year. It is reflected in the premonitory series of exhibits opened in the art museums. It has had an inordinate share of our planning. The detailed work of the Museum of History and Technology's staff in opening renewed halls and exhibits provides a foretaste. The results of the disastrous fire in that museum's exhibit area in 1970 have now finally been erased with the redoing of the affected halls. The redesigned space is highly effective, in places spectacular. Among the museum's other accomplishments has been the agreement, in collaboration with the National Armed Forces Museum Advisory Board, to set up the Dwight D. Eisenhower Institute for Historical Research.

The Renwick Gallery continues to attract throngs of people interested in its fascinating series of exhibits in the decorative arts. Work continues in the restoration of the building, and late this past spring, the cast-iron grillage atop the high-pitched mansard roof was finally reinstalled to lend the proper fillip to the Renwick's roofline. We hope to be able to copy the statues of Rubens and Murillo that once graced the niches on the west side of the Gallery. They should provide a romantic adornment to the Seven-



teenth Street elevation.

In New York, the Cooper-Hewitt, our National Museum of Design, continues with plans and preparations for the restoration of the Carnegie Mansion at 91st Street and Fifth Avenue. Exhibits, loan shows, and research keep the small, highly skilled staff of this Museum working at full pace. Only additional restoration funds are required for the necessary full-steam ahead.

Archival and historic studies assume an even-larger share of Smithsonian effort. The Archives of American Art, the Smithsonian Archives itself, and the National Anthropological Archives are among the most important in the Nation in the fields of the history of art and science and of American ethnology. In addition this past year marked the publication, timed to coincide with the mid-winter meeting of the American Association for the Advancement of Science, of the first volume of *The Papers of Joseph Henry*. Great credit is due Nathan Reingold and his staff for the masterly ground work in developing this project which, organized under a new method in such historical series, and highly automated, is planned to consist of a finite series of volumes, some fifteen or more, to be published with the expected lifetime of a single editor. The volume has been very handsomely edited and produced, already winning acclaim for the Smithsonian Press, and the first reviews have been most encouraging. The National Academy of Sciences, the American Philosophical Society, and the National Science Foundation can all be proud of the part they have taken in supporting this fascinating project.

In the areas of science, the Smithsonian proved active in the international field in 1972, serving on a number of committees of commissions, advising the Government on such diverse matters as international whaling regulations and endangered species. Close collaboration continues with the British Royal Society on the research programs of Aldabra Island in the Indian Ocean, as well as with a UNESCO-sponsored international consortium in the administration of the Charles Darwin Foundation and research station in the Galápagos Islands. Additionally, our interest in the environmental sciences brings us into touch with cooperative projects with scholars in the Mediterranean, the Caribbean, northern South America, and the East from South Asia to Indonesia. The Institution has developed a considerable competence in ecological assessment studies, particularly in connection with tropical areas; and, we have suggested more than once that in any continuing long-range study of ecological succession and regeneration in such devastated zones as Southeast Asia, more especially in parts of



Vietnam and associated states, the Smithsonian could be helpful as a coordinating force.

Whether by war or commercial exploitation, tropical areas of the world are being changed so radically in their environment today, that comparative ecological studies are already at a very high priority. Unfortunately, long-term interest in ecological research largely resides in the minds of specialists in the temperate-zone countries whose voices make little current impression on their governments. The tropics of the world today have become a vast frontier for exploitation by a relentless juggernaut of foreign capital and the exploitation technology of the developed nations, combined with the inexorable surge of population in the emerging, less-developed nations. The prospect is horrifying, but by preference no one cares. It is perhaps the "après nous le deluge" syndrome. The deserts of the Middle East and Southwest Asia, themselves largely man-made, are inexorably marching across southern Asia. Laterization of soils, now the increasing curse of central and northern South America, can be seen as the eventual result of massive forestry coupled with new agricultural practices in Southeast Asia. The deserts of northern Africa are progressing south and southwestward as well. Tropical land and soil is fragile compared to the temperate lands, poorly adapted to respond to modern agricultural techniques, but long-term warning signs seldom prove effective in influencing government policies.

While tropical-land environments seem easily influenced by exploitation, much remains to be learned about the responses of tropical seas. Such environments may be more resistant by far than those of the high latitudes, such as the Arctic or Antarctic. Here again enormously important areas of research remain to be developed in order to foretell long-term changes either harmful to or beneficial toward man. Some first important steps have been taken this past year by the Smithsonian's Tropical Research Institute. Much of tropical ecology has a strongly applied flavor in its relation to the health of man; but, like all ecology, it is a *difficult* subject for general human understanding or even for sophisticated planning because of the seeming impossibility of coming to quick and tidy conclusions. There are no miracle drugs or instant panaceas in the study of the environment, as we are discovering to our dismay. This does not make the subject any less vital, nor lessen the necessity of assigning priority to its support.

In our international activities a first grant has been approved by the Congress in the award of dollar funds held in foreign currencies, in this case Egyptian pounds, in support of the restoration

of the Temple of Philae inundated by the waters of the Aswan Dam. It is heartening in the midst of the political disarray of the relations of our country with the Arab world to find that we can think objectively about international cultural monuments, part of the world heritage. How many other nations and national legislatures can?

A major event of the early spring, 1973, was the fifth Smithsonian symposium, this one held in conjunction with the National Academy of Sciences to celebrate the quincentennial of the birth of Nicholas Copernicus. In addition to a fine exhibit of Copernican memorabilia and a number of musical and social events, some of them sponsored by Mr. Edward J. Piszek of Philadelphia, a series of illuminating talks and seminars were held before a distinguished audience by panel speakers in the history of science and in physics. The results will be published in 1974.

Elsewhere in this report there are detailed accounts of progress of the science bureaux in the past year. A principal hazard in our operations has been financial support which has slowed down generally in the scientific community at the very time that costs have increased in goods, materials, and services. The Institution continues to find budget difficulties in administering support services for its science departments, but this area still has our highest priority. During the past year a useful seminar held at the Belmont Conference Center on Institution goals reaffirmed the principal of support services being at the top of our list of future needs. A notable improvement in the past year has been the organization of the Office of Protection Services which is headed by Mr. Robert B. Burke. This office directs the Institution's health, safety, and security programs. In 1972 the Smithsonian won the President's Safety Award.

Several major staff changes have occurred during the past year. Professor Fred L. Whipple has retired as Director of the Smithsonian Astrophysical Observatory, although not as professor in Harvard University. His vital work for the Smithsonian stretches back to 1955, when the two laboratories first were conjoined in a common program of research. As Director, he is being succeeded by Professor George Field, formerly of the University of California. Dr. Richard S. Cowan has retired as Director of the National Museum of Natural History to resume his active role in the Department of Botany, and has been succeeded by Dr. Porter M. Kier, Chairman of the Department of Paleobiology. Dr. Martin H. Moynihan is stepping down after eleven years as Director of the Smithsonian Tropical Research Institute and will be succeeded by



the present Assistant Director, Dr. Ira Rubinoff. Dr. Adair Fehlmann has succeeded Dr. Eugene Wallen (Acting Director) as Director of the Fort Pierce Bureau in Florida. Colonel John H. Magruder III, Director of the National Armed Forces Museum Advisory Board, died tragically by drowning in the autumn of 1972, and has been succeeded as Director by Mr. James S. Hutchins. Mrs. Janet W. Solinger has been appointed Director of the Resident Associates Program. Mr. Benjamin H. Read has resigned as Director of the Woodrow Wilson International Center for Scholars to become President of the new German Marshall Fund of the United States.

In the central administration of the Institution, Dr. Robert A. Brooks has been named Under Secretary, Mr. Julian T. Euell was appointed Acting Assistant Secretary for Public Service; Mrs. Margaret C. Gaynor was appointed Congressional Liaison for the Institution; Mr. Richard Griesel was appointed Business Manager for the Smithsonian revenue-producing activities; Mr. James A. Mahoney became Director of Exhibits Central under the Assistant Secretary for Museum Programs; and Mr. Edward H. Kohn became Deputy Director for Administration at the National Zoological Park.

On May 16, 1973, Lewis A. Lapham succeeded Thomas J. Watson, Jr., as Chairman of the National Board of the Smithsonian Associates, a group of twenty-seven industrial and citizen leaders committed to assisting the Institution to extend its appeal to business organizations for private financial support. The Board held their second annual meeting at the Smithsonian on November 9, 1972. In February, six members accompanied me to the Smithsonian Tropical Research Institute for an introduction to research being conducted by Smithsonian scientists in the Panama Canal Zone.

The Women's Committee of the Smithsonian Associates completed a most successful year under the energetic chairmanship of Mrs. Helen Belding Smith. The Committee's services benefited the public and several Smithsonian organizations. The popular Free Film Theater was revived for the enjoyment of lunch-hour visitors, and a first Smithsonian appointment calendar was designed and produced for sale in Museum Shops. One group of volunteers undertook the laborious work of organizing a part of the Institution's photographic files.

Three meetings of the Board of Regents were held during the past year. The autumn meeting was convened on November 20, 1972, in the Regents' Room of the Smithsonian Institution Building.



Senator Clinton P. Anderson, upon completion of more than twenty-eight years in the Congress of the United States and twenty-four years as a member of the Smithsonian Board of Regents, announced his retirement to become effective at the conclusion of the 92d Congress. The Board of Regents recommended that a resolution be adopted and a citation be presented to him in tribute to his distinguished service with admiration and gratitude for his participation in the affairs of the Institution.

The death of Frank T. Bow, a distinguished member of the Board of Regents for fourteen years, and an outstanding member of the House of Representatives, occurred on November 13, 1972. A citation in recognition of Mr. Bow's many contributions to the Smithsonian Institution was unanimously approved.

The Chancellor appointed a study group organized under the Chairmanship of Dr. Caryl P. Haskins to review all senior positions in the Institution and report to the Board at its next meeting. The Regents received a number of status reports including construction progress on the Hirshhorn Museum and Sculpture Garden, which continues to be slow although renewed assurances have been received that the building will be completed by June 30, 1973.

The final design and building plans of the National Air and Space Museum were approved by the National Capital Planning Commission, construction funds were transferred to the General Services Administration and construction started on September 18, 1972.

The National Armed Forces Museum Advisory Board will work with the National Park Service in developing plans for Fort Washington and exploring other possible sites around the District of Columbia for the Bicentennial Outdoor Museum.

The Smithsonian projects planned for the American Revolution Bicentennial, many of which are contained in the President's schedule of events for the celebration, will include the Nation of Nations exhibits in the National Museum of History and Technology; Ecology 200-U.S.A. in the National Museum of Natural History; Centennial 1876 in the Arts and Industries Building; the Artist and the American Scene and Design and the City in the National Collection of Fine Arts and the Renwick Gallery; Revolutionary Period exhibits in the National Portrait Gallery; Exhibits Design and Production Laboratory in Anacostia Neighborhood Museum; Festival of American Folklife by the Division of Performing Arts; National Bicentennial Traveling Exhibits; and the opening of the National Air and Space Museum.

As authorized by the Regents, the Smithsonian has entered into

a product development program which will create authentic reproductions of objects in our collections; and these objects are expected to be on the market by 1974.

The National Zoological Park master plan has been approved, and the Executive Committee urged that the parking project be pushed ahead.

The Chesapeake Bay Center for Environmental Studies received an additional parcel of land which is vital to the physical integrity of the Center.

Following the meeting, the Board of Regents went to the construction site of the National Air and Space Museum where the Chancellor and the Secretary made dedicatory addresses in groundbreaking ceremonies.

The winter meeting was held at Hillwood, the estate of Mrs. Marjorie Merriweather Post, on January 24, 1973. The newly appointed Congressional members of the Board of Regents were Senator Henry M. Jackson (replacing Senator Anderson) and Representative William E. Minshall (replacing Representative Bow).

The Board of Regents approved the resubmission of legislation that would authorize planning and construction of museum support facilities; a bill to establish certain senior-level positions in the Executive Level Salary Scale; and a bill to reserve a site for future public uses of the Smithsonian Institution.

The James Smithson Society Medallion, the Regents' benefactor honor, was awarded to Mrs. Marjorie Merriweather Post in appreciation for her most generous renewal of James Smithson's challenge to mankind for the increase and diffusion of knowledge.

The spring meeting of the Board was held in the Regents' Room in the Smithsonian Building on May 9, 1973. The Regents approved the production of a series of prime-time, commercial network, television specials drawing on areas concerned with its programs in the fields of art, science, and history. The specials are expected to begin with the 1974-1975 television season.

A statement declaring the policy on Museum Acquisitions and addressing particularly the subject of illicit traffic in art, antiquities, and natural objects, which broad international efforts now seek to control, was wholeheartedly endorsed by the Board of Regents. The policy statement was given wide circulation in the hope that museums will support the laws and adopt standards for acquisitions.

At the conclusion of the meeting, the Board of Regents and other invited guests honored Mr. Joseph H. Hirshhorn in presenting to him the James Smithson Society Medallion.

# Financial Report

T. AMES WHEELER, *Treasurer*

IT IS A PLEASURE to report that substantial progress was made in the financial affairs of the Institution in Fiscal Year 1973. Increased federal support was provided for on-going educational, research, and exhibition programs, the construction of the new National Air and Space Museum, and preparation of major exhibitions for the 1976 program for celebration of the Bicentennial of the American Revolution. Support in the form of grants and contracts, gifts and bequests, and other nonfederal-funds income also increased. Additional funds are, however, now urgently needed to meet Institutional commitments toward a number of important projects, notably the reestablishment of the Cooper-Hewitt Museum of Decorative Arts and Design and completion of the land acquisition and building program of the Chesapeake Bay Center for Environmental Studies.

The Institution's revenue-producing activities, representing an important element of our efforts toward "self-help," produced an overall gain for the first time and contributed to the much larger favorable FY 1973 balance in our relatively small but vitally important unrestricted private trust funds. As a part of such efforts we continued to lay the groundwork for a collections-related product development program which, in addition to extending our educational efforts, should soon become an important source of additional financial support.

## *Overall Sources and Application of Financial Support*

Financial affairs of the National Gallery of Art, the John F. Kennedy Center for the Performing Arts, and the Woodrow Wilson International Center for Scholars which are related to, but largely administered independently of the Smithsonian, are not included in this Financial Report. Total financial support from all sources for the Institution, exclusive of those organizations is summarized in Table 1.



TABLE 1.—Overall Sources of Financial Support  
[In \$1,000's]

<i>Sources</i>	<i>FY 1970</i>	<i>FY 1971</i>	<i>FY 1972</i>	<i>FY 1973</i>
<b>OPERATING FUNDS</b>				
Federal appropriation:				
Salaries and expenses . . . . .	\$32,679	\$36,895	\$44,701	\$51,633
Smithsonian Science Information Exchange . . . . .	*	*	1,600	1,600
Special Foreign Currency Program . . . . .	2,316	2,500	3,500	3,500
Subtotal . . . . .	\$34,995	\$39,395	\$49,801	\$56,733
Research grants and contracts . . . . .	10,825*	9,312*	8,088	8,996
Nonfederal funds:				
Gifts (excluding gifts to endowments)				
Restricted purpose . . . . .	2,290	1,905	2,618	3,107
Unrestricted purpose . . . . .	18	304**	26**	33**
Income from endowment and current funds investment				
Restricted purpose . . . . .	999	1,372	1,573	1,736***
Unrestricted purpose . . . . .	281	330	334	436
Revenue producing activities (gross) . . . . .				
Less costs and expenses . . . . .	(3,841)	(5,240)	(6,586)	(8,313)
Miscellaneous . . . . .	503	406	548	1,118
Total nonfederal funds . . . . .	3,050	3,783	4,958	6,600***
Total Operating Support . . . . .	\$48,870	\$52,490	\$62,847	\$72,329
<b>CONSTRUCTION FUNDS</b>				
(Federal)				
National Zoological Park . . . . .	\$ 600	\$ 200	\$ 200	\$ 675
National Air and Space Museum . . . . .				
Joseph H. Hirshhorn Museum . . . . .	3,500	5,200	3,697	—0—
Restoration and renovation of buildings . . . . .	525	1,725	550	5,014
Total Construction Funds . . . . .	\$ 4,625	\$ 7,125	\$ 6,347	\$45,689

\* SSIE funded by NSF contract in FY 1970 (\$1,707,000) to FY 1971 (\$1,400,000) and thereafter by direct federal appropriation.

\*\* Excluding gifts to Associates (included under Revenue Producing Activities).

\*\*\* Includes \$225,000 of FY 1973 income transferred from Endowment Fund #3 for this purpose in FY 1972.

\*\*\*\*\$13,000,000 in new obligational authority plus \$27,000,000 in contract authority.

TABLE 2.—*Source and Application of Funds for Year Ended June 30, 1973*  
[In \$1,000's]

Funds	Nonfederal funds						G
	Federal funds	Total nonfederal funds	Unrestricted		Restricted		
			General	Revenue producing	Endow- ment income	Gifts	
FUND BALANCES—							
1 July 1972.....	\$ -0-	\$ 4,888	\$ 1,781	\$ -0-	\$ 551	\$ 2,506	\$
FUNDS PROVIDED							
Federal Appropriations.....	\$53,233						
Investment Income.....		\$ 1,947	\$ 436	\$ —	\$ 1,460	\$ 51	\$
Grants and Contracts.....		9,027	—	—	—	—	
Gifts.....		3,297	33	157	72	3,035	
Sales and Revenue.....		8,948	297	8,319	—	332	
Less: Cost of Sales.....		(5,207)	—	(5,207)	—	—	
Other.....		496	77	7	117	295	
Total Provided.....	\$53,233	\$18,508	\$ 843	\$3,276	\$1,649	\$3,713	\$
Total Available.....	\$53,233	\$23,396	\$2,624	\$3,276	\$2,200	\$6,219	\$
FUNDS APPLIED							
Science:							
Environmental Science.....	\$ 1,201	\$ 1,264	\$ 42	\$ —	\$ —	\$ 165	\$
Natl. Museum of Nat. Hist....	6,277	1,323	3	—	114	160	
Natl. Zoological Park.....	4,057	28	12	—	—	13	
Fort Pierce Bureau.....	—	1,082	—	—	—	1,082	
Science Info. Exchange.....	1,600	—	—	—	—	—	
Smithsonian Astroph.							
Observatory.....	2,972	5,330	18	—	33	166	
Radiation Biology Lab.....	1,313	100	3	—	21	—	
Smithsonian Tropical							
Research Inst.....	947	68	2	—	2	4	
Interdisciplinary Communica-							
tions Pgm.....	—	536	—	—	—	26	
Natl. Air and Space Museum..	1,122	240	4	—	158	10	
Other Science.....	840	733	37	—	24	55	
Total.....	20,329	10,704	121	—	352	1,681	
History and Art:							
Natl. Portrait Gallery.....	1,028	31	2	—	—	19	
Natl. Collection of Fine Arts...	1,361	46	12	—	4	30	
Freer Gallery.....	177	1,015	—	—	1,015	—	
Natl. Museum of History and							
Technology.....	2,858	344	61	—	38	197	

LE 2.—*Source and Application of Funds for Year Ended June 30, 1973—Continued*  
 [In \$1,000's]

Funds	Nonfederal funds						
	Federal funds	Total nonfederal funds	Unrestricted		Restricted		Grants and contracts
			General	Revenue producing	Endowment income	Gifts	
er-Hewitt Museum.....	—	417	—	—	—	389	28
ives of American Art.....	203	135	—	—	—	135	—
ennial of the American Revolution.....	780	—	—	—	—	—	—
horn Museum.....	1,125	43	43	—	—	—	—
History & Art.....	490	245	2	—	—	143	100
Total.....	8,022	2,276	120	—	1,057	913	186
<i>Service:</i>							
<i>Value Producing Activities</i>							
thsonian Press.....	761	99	—	99	—	—	—
forming Arts.....	353	472	—	270	—	12	190
thsonian Magazine.....	—	1,015	—	1,015	—	—	—
ociates.....	—	671	—	671	—	—	—
useum Shops.....	—	610	—	610	—	—	—
er.....	—	407	—	407	—	—	—
stia Museum.....	258	69	22	—	—	18	29
ng Is Fundamental.....	—	542	—	—	—	542	—
Public Service.....	881	63	32	—	—	3	28
Total.....	2,253	3,948	54	3,072	—	575	247
<i>Programs:</i>							
ies.....	1,048	4	—	—	—	4	—
its.....	3,039	52	—	—	—	30	22
Museum Act Pgms.....	794	—	—	—	—	—	—
Museum Programs.....	1,779	50	14	—	—	34	2
Total.....	6,660	106	14	—	—	68	24
<i>Programs Management and Protection Services:</i>							
Administration.....	11,982	—	—	—	—	—	—
Administration.....	3,987	2,822	175	410	106	259	1,872
hread Recovered.....	—	(2,772)	(125)	(410)	(106)	(259)	(1,872)
ers for Designated Purposes.....	—	90	(59)	204	278	(322)	(11)
Total Funds Applied...	\$53,233	\$17,174	\$ 300	\$3,276	\$1,687	\$2,915	\$8,996
<b>BALANCES—</b>							
June 1973.....	\$ -0-	\$ 6,222	\$2,324	\$ -0-	\$ 513	\$3,304	\$ 81



Thus, total support for operating purposes in FY 1973 exceeded \$72 million, up about \$10 million from the previous year. Of this amount, federal appropriations provide 79 percent, research grants and contracts another 12 percent, and the Institution's nonfederal income the remaining 9 percent.

In addition Congress approved construction fund appropriations of \$45,689,000 principally to complete, over a four-year period, the new National Air and Space Museum. Other construction funds will provide for air conditioning and renovation of the 1879 Arts and Industries Building.

The sources and applications of all of these operating funds (excluding construction funds and also excluding the Special Foreign Currency Program) are shown in Table 2.

### *Federal Operating Funds*

As shown in the tables, Smithsonian federal appropriations for operating purposes totaled \$56,733,000, including \$1,600,000 for the Smithsonian Science Information Exchange, a separately incorporated organization, and \$3,500,00 for the Special Foreign Currency Program in the form of blocked currencies of certain foreign countries administered as grants to some 220 U.S. universities and similar institutions to conduct research studies in those countries (see Table 3).

TABLE 3.—*Special Foreign Currency Program, Fiscal Year 1973 Obligations*  
[In \$1,000's]

<i>Country</i>	<i>Archeology</i>	<i>Systematic and environ- mental biology</i>	<i>Astrophysics and earth sciences</i>	<i>Museum Programs</i>	<i>Grant adminis- tration</i>	<i>Total</i>
India . . . . .	\$1,299.0	\$102.6	\$ 3.4	\$ 21.9	\$17.0	\$1,443.9
Morocco . . . . .	162.0	19.3	2.2	—	—	183.5
Pakistan . . . . .	39.8	23.4	1.5	—	—	64.7
Poland . . . . .	58.1	28.9	69.6	98.8	14.0	269.4
Tunisia . . . . .	80.5	372.6	2.2	16.0	12.0	483.3
Egypt . . . . .	730.6	77.6	.1	7.0	6.9	822.2
Yugoslavia . . . . .	131.0	256.5	4.6	—	2.2	394.3
Burma . . . . .	.1	—	—	—	—	.1
Total . .	\$2,501.1	\$880.9	\$83.6	\$143.7	\$52.1	\$3,661.4*

\* Includes unexpended balance of FY 1972 appropriation carried forward for use in FY 1973.

Excluding such special purpose appropriations, federal operating funds of \$51,633,000 were \$6,932,000 greater than in FY 1972. Of this increase, over \$3,500,000 was needed for legislated increases in federal salaries. Nevertheless, the increased federal funds will also provide for continued preparations for the opening of the Hirshhorn Museum, for increased Bicentennial activities, for National Air and Space Museum exhibits and for maintenance, protection and other support areas which will be a high priority in future years' budgets. Allocation of the appropriations for operating purposes (excluding Foreign Currency Program) by broad activity areas over the past several years is shown in Table 4.

### *Grants and Contracts*

Many of the Institution's important research programs are supported by grants and contracts, the major portion of which are from federal agencies; see Table 5. This type of support increased to nearly \$9 million in FY 1973, approximately half of this amount coming from the National Aeronautics and Space Administration for projects of the Smithsonian Astrophysical Observatory, such as satellite tracking, analysis of lunar samples, and the operation of the Mount Hopkins, Arizona, Observatory. The remainder went largely to support a large variety of other scientific projects ranging from study of endemic Asian diseases to ecological studies of the Chesapeake Bay area.

TABLE 4.—*Application of Federal Appropriations, FY 1970 through FY 1973, Excluding Special Foreign Currency Program*  
[In \$1,000's]

<i>Area</i>	<i>FY 1970</i>	<i>FY 1971</i>	<i>FY 1972</i>	<i>FY 1973</i>
Science.....	\$11,761	\$13,495	\$18,365*	\$20,329*
History and Art.....	5,081	5,878	6,285	8,022
Public Service.....	1,445	1,442	2,093	2,253
Museum Programs.....	3,592	3,744	5,881	6,660
Administration.....	2,733	3,051	3,235	3,987
Building Maintenance and Protection...	8,067	9,285	10,442	11,982
Total.....	\$32,679	\$36,895	\$46,301	\$53,233

\* Includes \$1,600,000 for the Science Information Exchange which had been funded prior to 1972 by grants from the National Science Foundation.

TABLE 5.—*Grants and Contracts*  
[In \$1,000's]

<i>Federal agencies</i>	<i>FY 1970</i>	<i>FY 1971</i>	<i>FY 1972</i>	<i>FY 1973</i>
Atomic Energy Commission.....	\$ 86	\$ 91	\$ 73	\$ 76
Department of Commerce.....	4	166	392	203
Department of Defense.....	1,103	843	916	969
Department of Health, Education and Wel- fare.....	447	409	411	306
Department of Interior.....	112	258	247	230
Department of State.....	21	176	195	593
National Aeronautics and Space Adminis- tration.....	6,561	4,930	4,605	4,923
National Science Foundation.....	2,246*	2,028*	560	957
Other.....	245	411	689	739
<b>Total.....</b>	<b>\$10,825</b>	<b>\$9,312</b>	<b>\$8,088</b>	<b>\$8,996</b>

\* Includes funding for SSIE of \$1,707,000 in FY 1970 and \$1,400,000 in FY 1971.

### *Private Trust Funds*

In addition to federal appropriations and grants and contracts, the Smithsonian also received \$6,600,000 of private funds from gifts (excluding gifts to endowment funds), endowment fund income, revenue-producing activities, concession fees and other miscellaneous sources, as shown in Table 1. While such support has increased in recent years, it is still well below the Institution's goal for achieving a better balance of support from nonfederal sources. This income is, furthermore, largely dedicated to specific restricted purposes as shown in Table 6.

TABLE 6.—*Total Private Funds Income for Fiscal Year 1973*  
[In \$1,000's]

<i>Revenue sources</i>	<i>Unrestricted purposes</i>	<i>Restricted purposes</i>	<i>Total</i>
Investments.....	\$ 436	\$1,736*	\$2,172*
Gifts.....	33**	3,107	3,140**
Revenue Producing Activities.....	170	—	170
Concessions and miscellaneous.....	374	744	1,118
<b>Total.....</b>	<b>\$1,013</b>	<b>\$5,587</b>	<b>\$6,600</b>

\* Includes \$225,000 of FY 1973 income transferred from Endowment Fund #3 for this purpose in FY 1972.

\*\* Excluding \$157,000 gifts to Associates (included under Revenue Producing Activities) and \$114,000 gifts to Endowment Funds.



*Unrestricted Private Funds.*—As has been continually emphasized in these reports, a strong and well-balanced position for the Institution's unrestricted private funds is absolutely essential to the maintenance of its unique character among government-related organizations. These funds permit the flexibility of operation and high degree of nonpolitical objectivity which contribute importantly to innovative and lively programs, create special attraction to visitors and donors of collections of objects of national interest, and maintain the Institution's worldwide acceptance in scientific and cultural fields. The attention given by management to strengthening this portion of Smithsonian finances in recent years has resulted in very substantial improvement as shown in the summary of its unrestricted private accounts given in Table 7.

TABLE 7.—*Unrestricted Private Funds*  
[In \$1,000's]

	FY 1970	FY 1971	FY 1972	FY 1973
<b>INCOME:</b>				
Investment.....	\$ 323	\$ 334	\$ 334	\$ 436
Gifts.....	18	304	26	33
Concession and Miscellaneous.....	540	215	197	374
<b>Total Income.....</b>	<b>\$ 881</b>	<b>\$ 853</b>	<b>\$ 557</b>	<b>\$ 843</b>
<b>EXPENDITURE:</b>				
Administrative Expense.....	3,256	2,723	2,994	3,242
Less Administrative Recovery.....	2,435	2,254	2,639	2,772
<b>Net Administrative Expense.....</b>	<b>821</b>	<b>469</b>	<b>355</b>	<b>470</b>
<b>Revenue Producing Activities</b>				
Associates— <i>Smithsonian Magazine</i> ....	(472)	(209)	2	330
—Other.....	(41)	10	74	(43)*
Shops.....	(28)	(80)	19	47
Press.....	(200)	(159)	(111)	(109)
Performing Arts.....	(167)	(78)	(50)	(65)
Product Development.....	—	—	—	69
Other Activities.....	(133)	(18)	(75)	(59)
<b>Total Activities.....</b>	<b>(1,041)</b>	<b>(534)</b>	<b>(141)</b>	<b>170</b>
<b>Total Expenditures.....</b>	<b>1,862</b>	<b>1,003</b>	<b>496</b>	<b>300</b>
<b>Net Gain (Loss).....</b>	<b>(981)</b>	<b>(150)</b>	<b>61</b>	<b>543</b>
<b>ENDING Balance.....</b>	<b>\$1,870</b>	<b>\$1,720</b>	<b>\$1,781</b>	<b>\$2,324</b>

\*After charges for portion of Development Office treated as administrative expense in prior years.

From this it may be seen that after gaining a small positive balance in Fiscal Year 1972, Fiscal Year 1973 showed very substantial further improvement. The net gain of \$543,000 for the year raised the unrestricted fund balance to \$2,324,000, moving it a considerable distance toward our goal of restoring unrestricted working capital funds to at least the \$3,000,000 needed to finance more comfortably the advances required for our participation in contract research work, to carry our Museum Shop and publications inventories, and to handle normal financial needs for payrolls, services, and supplies.

Increased investment income, principally from short-term investment of larger advance magazine subscription monies, was a factor in this improved FY 1973 result. Most important to the achievement of the more favorable result for unrestricted funds in FY 1973 was the \$311,000 improvement in the overall results of the revenue-producing activities which for the first time enabled them to make an overall positive contribution to Institutional finances. Additional detail on these activities is shown in Table 8.

Among these activities the most outstanding improvement was shown by the magazine *Smithsonian* which produced a net gain of \$330,000, compared with approximately a break-even performance in FY 1972. The enthusiastic reception given to this publication, which is designed primarily to extend the Institution's educational efforts and build a constituency of interested citizens throughout the Nation, is evidenced by the rapid gain in circulation in FY 1973 which rose from 330,000 National Associate members as of 30 June 1972 to 458,000 as of 30 June 1973.

The increased attention being devoted to our Museum Shops is producing favorable results. The 33 percent gain in sales in FY 1972 was followed by a further 18 percent increase in FY 1973 to \$1,622,000, and net income rose to \$47,000 this year compared to \$19,000 in FY 1972. Planning is now underway for relocation and redesign of some of the Shops and for an up-grading of the type of merchandise handled. Continuing gains are, therefore, expected over the next several years. It is interesting to note that the new guidebook, *Seeing the Smithsonian*, which became available only in June 1973 has obviously met a strong visitor need and is having a distinct impact on the Museum Shop sales.

The first tangible financial results of the new Product Development Program appeared in FY 1973 with advance royalty receipts of \$118,000. This program, which was originated to further the educational efforts of our museums through obtaining closely related merchandise for our Museum Shops, shows great promise not only of accomplishing this objective but also providing substantial and

TABLE 8.—*Revenue Producing Activities for Fiscal Year 1973*

[In \$1,000's]

Item	Total	Museum shops	Press*	Associates				
				Smith- sonian magazine	Other	Per- forming Arts	Product develop- ment	Other**
and Revenues . . . .	\$8,319	\$1,622	\$ 81	\$4,731	\$1,104	\$205	\$118	\$458
Cost of Sales . . . . .	5,207	966	97	3,386	633	—	—	125
Gross Income . . . .	3,112	656	(16)	1,345	471	205	118	333
Net Income . . . . .	157	—	—	—	157	—	—	—
Net Income . . . . .	7	—	6	—	—	—	—	1
Total Income . . . .	3,276	656	(10)	1,345	628	205	118	334
Expenses . . . . .	2,696	484	87	865	610	246	49***	366
Income (loss) before charge for admin- istrative costs . . . . .	580	172	(97)	480	18	(41)	69	(21)
Administrative Costs . . . . .	410	125	12	150	61	24	—	38
Net INCOME (loss) . . . . .	\$ 170	\$ 47	\$(109)	\$ 330	\$ (43)****	\$(65)	\$ 69	\$(59)

The privately funded activities of the Press as opposed to the federally supported publication of research papers.

Includes Traveling Exhibitions, Belmont Conference Center, Photo Sales, and the "Commons" restaurant.

\* This includes a transfer of \$34,000 to Smithsonian bureaus participating in this program.

\*\*After charges for portion of Development Office treated as administrative expense in prior years.

increasing income in future years. Agreement was reached during FY 1973 with the Tonka Corporation, a leading U.S. toy manufacturer, under which that corporation will manufacture and sell, in close coordination with the Smithsonian, a line of museum-related products, the first of which should appear in the spring of 1974. Somewhat similar arrangements with CBS/Education & Publication Group led to the publication of the new Smithsonian guidebook, now being sold in large numbers both in our Museum Shops and outside the Institution. A reprinting of the guidebook, including four foreign-language translations, is expected in October 1973. Similar agreements with manufacturers in a number of other product fields are now under consideration. Great care is being taken in these efforts to insure strict standards of quality, authenticity,



and good taste in all phases of the products' design, manufacture, promotion, and sale.

Additional "self-help" efforts include a variety of other undertakings from the attractive new Smithsonian-McGraw Hill Bookstore in the National Museum of History and Technology and the inauguration of modest parking fees at the National Zoological Park to audiophone museum guidance operations, catalogue publishing, and the sale of photographic slides and "first-day covers" of historic events in aviation history. The Bookstore, opened in June 1972, completed a successful first year in FY 1973. The operation of the parking-fee facilities at the Zoo begun in April 1973 is handled by the Friends of the National Zoo, who also operate the Zoo shops and mobile train service, under an agreement whereby they direct a portion of the net receipts to new educational programs at the Zoo with the remaining portion of these net receipts being reserved by the Institution toward improving and enlarging Zoo parking facilities in the future in a manner designed eventually to make available an additional 12 acres of park area for animal care.

These growing Smithsonian efforts appear to promise greater success in the future in bolstering private funding to a somewhat better balance with our federal support. There is, nevertheless, a real need for an increase also in donations from corporations, foundations, and individuals and a need to build a nationwide constituency of interest in and support for this national institution. This is a major purpose of our National Associates organization.

*Restricted Private Funds.*—Funds made available to the Institution for specific purposes, largely from gifts or from income of endowment funds previously dedicated to such purposes, are also of great importance. In some cases, such as the Freer Gallery of Art, the Cooper-Hewitt Museum, and the Fort Pierce Bureau, private restricted funds provide all or the greatest share of their support. All of the land of the Chesapeake Bay Center has been acquired either by direct gift or purchased with private funds donated for this purpose. Hundreds of separate accounts are maintained for funds dedicated to a tremendous variety of similar purposes. The largest of these are given in Table 9.

As may be noted, gifts provided \$3,107,000 of this total restricted purpose income, up from \$2,618,000 in the previous year. Endowment fund income added \$1,736,000, with another \$744,000 coming from membership fees, rentals, sales of publications, museum shops, etc.

TABLE 9.—*Restricted Private Funds, Fiscal Year 1973*

[In \$1,000's]

Bureau	Income				Deduc- tions	Net increase (decrease)	Fund balance end of year
	Invest- ment	Gifts	Miscel- laneous	Total income			
Freer Gallery.....	\$ 862	\$ 72	\$111	\$1,045	\$1,016	\$ 29	\$ 149
Fort Pierce Bureau.....	483*	297	—	780*	1,082	(302)	(43)
Chesapeake Land Acquisition Pro- gram.....	—	100	49	149	125	24	155
Cooper-Hewitt Museum Operations.....	51	33	35	119	216	(97)	(115)
Funds for Collection.....	—	—	181	181	—	181	249
Special Purpose Funds.....	—	176	—	176	28	148	197
Building Renovation.....	—	106	—	106	159	(53)	885
Building is Fundamental.....	—	1,189	—	1,189	542	647	712
Anacostia Museum.....	—	4	—	4	18	(14)	12
Archives of American Art.....	6	15	221	242	135	107	193
Freer.....	334	1,115	147	1,596	1,281	315	1,422
Total Restricted Funds.	\$1,736*	\$3,107	\$744	\$5,587*	\$4,602	\$ 985	\$3,816

Includes \$225,000 of FY 1973 income transferred from Endowment Fund #3 for this purpose in 1972.

Adoption of the Total Return Concept of Income for all endowment funds (see below) this year raised the Freer Gallery income substantially and enabled it to increase collection purchases and still operate within its resources. The exceptionally large expenditures of the Fort Pierce Bureau, met in part from an additional contribution of approximately \$300,000, reflected continued work to complete the tender ship, *R/V Johnson*.

Two important operations which are dependent largely upon restricted funds are in urgent need of greater support. The land acquisition program at Chesapeake Bay Center benefitted by another \$100,000 donation from the A. W. Mellon Foundation but another \$500,000 will still be required to complete this land purchase program, and still more funds are needed for conference and study buildings at that location. And the Cooper-Hewitt Museum in New York City, although adding to its building renovation and collection purchase funds in FY 1973, ran an operating deficit of \$97,000 even at its present minimal "holding" level when certain expected contributions did not materialize by year-end.

The Archives of American Art, which like the Freer Gallery and Anacostia Museum also receives some federal funds support, devel-

oped a healthy private funds surplus in FY 73 as the result of a mounting membership campaign and other successful fund-raising efforts. Reading is Fundamental has now been incorporated as a separate organization although it will continue to operate in close association with the Smithsonian.

### *Endowment Funds*

The Institution has three endowment funds as follows: The Freer Fund is dedicated entirely to the operation of the Freer Gallery of Art; Endowment Fund No. 3 supports research work in underwater oceanography at the Fort Pierce Bureau in Florida; the Consolidated Fund includes all other endowment funds both for restricted and unrestricted purposes, with investments of the fund being pooled for investment purposes, although maintained separately for accounting and administrative purposes.

Changes in market values of endowment funds since 1960, reflecting additions from donations, reinvestment of income, and changes in securities valuations are shown in Table 10.

TABLE 10.—*Market Values of Endowment Funds*  
[In \$1,000's]

<i>Fund</i>	6/30/60	6/30/65	6/30/70	6/30/71	6/30/72	6/30/73
Freer Fund . . . . .	\$13,389	\$17,276	\$14,987	\$18,805	\$21,973	\$18,279
Endowment Fund						
No. 3 . . . . .	—	—	5,433	12,331	14,641	13,196
Consolidated Fund . .	4,498	7,853	8,998	11,470	13,287	12,393
Total . . . . .	\$17,887	\$25,129	\$29,418	\$42,606	\$49,901	\$43,868

The policies and procedures governing the management of our endowment funds and other investment accounts were outlined in full in the financial reports of the past two years. In brief, they include the delegation of the investment management to three professional advisory firms, with full discretion to act, subject to policies adopted by the Board of Regents and to continual close monitoring by the Investment Policy Committee and the Treasurer. In addition, the principles of the Total Return Concept of investment are followed as to the establishment of investment goals and the deter-



mination of annual income. Such income has been set at  $4\frac{1}{2}$  per cent of the latest running five-year average of market values of the funds as of March 31st of each year.

Fiscal Year 1973 was a difficult one from the standpoint of financial management and all of the Institution's funds suffered a decline in values as the result of the general fall in stock prices. Results for the past year of these funds is shown in Table 11.

TABLE 11.—*Changes in Endowment Funds, Fiscal Year 1973*

<i>Fund</i>	<i>Market Value 6/30/72</i>	<i>Gifts and Trans- fers</i>	<i>Interest and Divi- dends*</i>	<i>Income Paid Out</i>	<i>Sub- total</i>	<i>Decline in Market Value</i>	<i>Market Value 6/30/73</i>
Freer Fund.....	\$21,973	\$ —	\$ 611	\$ 862	\$21,722	\$3,443	\$18,279
Endowment Fund							
No. 3.....	14,641	—	149	258	14,532	1,336	13,196
Consolidated							
Fund.....	13,287	197	384	531	13,337	944	12,393
Total.....	\$49,901	\$197	\$1,144	\$1,651	\$49,591	\$5,723	\$43,868

\* Income earned less managers' fees.

The decline in the value of the funds due to the fall in security values alone during the past fiscal year was greater than that shown by the more widely recognized stock market averages but for the past two-year period as a whole has been closely comparable to those averages.

Additions to the Consolidated Fund during the year included \$114,000 from bequests and gifts and also \$83,000 of transfers of income for reinvestment in accordance with terms of certain bequests. Income paid out, as determined by Total Return policies mentioned above, amounted to \$1,651,000 in FY 1973. Such income will increase further in FY 1974, principally in Endowment Fund No. 3. A listing of the individual investments held in the various endowment funds may be obtained upon request to the Treasurer of the Institution.

TABLE 12.—*Consolidated Fund, 30 June 1973*

<i>Funds participating in pool</i>	<i>Principal</i>		<i>Income</i>	
	<i>Book value</i>	<i>Market value</i>	<i>1973 Net income</i>	<i>Unexpended balance</i>
UNRESTRICTED FUNDS	\$ 4,639,163	\$ 4,652,782	\$199,492	\$ —
RESTRICTED FUNDS...				
Abbott, William L. ....	216,712	234,315	9,969	2,743
Archives of American Art...	22,687	23,880	1,045	—
Armstrong, Edwin James...	4,030	3,780	156	—
Arthur, James.....	65,778	87,655	3,835	12,245
Bacon, Virginia Purdy.....	188,587	182,869	7,780	18,668
Baird, Spencer Fullerton....	60,297	78,355	3,429	1,716
Barney, Alice Pike.....	47,172	62,814	2,748	4,337
Barstow, Frederic D.....	2,078	2,244	95	1,697
Batchelor, Emma E.....	68,746	65,175	2,773	2,890
Becker, George F.....	324,078	316,512	13,466	15,733
Brown, Roland W.....	53,545	59,908	2,621	5,956
Canfield, Frederick A.....	62,938	96,576	4,226	—
Casey, Thomas Lincoln....	26,066	28,228	1,201	480
Chamberlain, Frances Lea..	46,315	61,676	2,699	4,769
Cooper, G. Arthur, Curator's Fund.....	2,459	2,323	91	—
Cooper-Hewitt Museum....	162,948	151,628	6,569	—
Desautels, Paul E.....	1,550	1,752	—	—
Div. of Mammal Curator Fund.....	3,507	3,582	157	384
Div. of Reptiles Curator Fund.....	576	614	27	106
Drake, Carl J.....	288,675	282,264	12,168	19,564
Dykes, Charles.....	89,521	96,903	4,123	7,803
Eickemeyer, Florence Brevoort.....	17,877	23,797	1,041	4,307
Guggenheim, David and Florence.....	220,842	197,277	7,609	—
Hanson, Martin Gustav and Caroline Runice.....	18,486	20,010	851	9,346
Hillyer, Virgil.....	13,668	14,803	630	7,090
Hitchcock, Albert S.....	2,596	3,511	154	188
Hrdlicka, Ales and Marie...	99,864	109,127	4,775	1,578
Hughes, Bruce.....	31,481	41,971	1,836	22,929
Johnson, E. R. Fenimore...	16,663	14,815	630	4,010
Kellogg, Remington, Memorial.....	48,774	42,324	1,375	1,213
Lindsey, Jessie H.....	610	617	27	243

TABLE 12.—*Consolidated Fund, 30 June 1973—Continued*

<i>Funds participating in pool</i>	<i>Principal</i>		<i>Income</i>	
	<i>Book value</i>	<i>Market value</i>	<i>1973 Net income</i>	<i>Unexpended balance</i>
Loeb, Morris . . . . .	181,675	198,453	8,443	422
Long, Annette E. and Edith C. . . . .	894	1,222	53	412
Lyons, Marcus Ward . . . . .	8,941	7,999	340	—
Maxwell, Mary E. . . . .	32,260	43,003	1,882	7,901
Myer, Catherine Walden . . . . .	42,014	45,483	1,935	4,303
Nelson, Edward William . . . . .	39,138	48,697	2,131	—
Noyes, Frank B. . . . .	2,023	2,292	98	1,126
Pell, Cornelia Livingston . . . . .	15,434	16,791	714	5,030
Petrocelli, Joseph, Memorial. Rathbun, Richard, Memorial . . . . .	12,192	16,312	714	8,064
	22,139	24,058	1,024	10,762
Ramsey, Adm. and Mrs. DeWitt Clinton . . . . .	534,704	478,129	21,523	324
Reid, Addison T. . . . .	36,984	40,032	1,703	2,611
Roebing Collection . . . . .	198,501	263,061	11,511	1,239
Roebing Solar Research . . . . .	51,220	51,726	2,201	—
Rollins, Miriam and William	304,922	362,825	15,641	—
Ruef, Bertha M. . . . .	65,716	57,557	1,272	1,272
Smithsonian Agency Account . . . . .	168,734	149,990	5,679	—
Sprague, Joseph White . . . . .	2,217,248	2,182,979	94,106	43,169
Springer, Frank . . . . .	29,494	39,255	1,718	20,044
Stevenson, John A. . . . .	9,925	10,665	467	—
Strong, Julia D. . . . .	20,810	22,607	962	3,457
T. F.H. Publications, Inc. . . . .	8,967	7,280	310	12,221
Walcott, Charles D. . . . .	195,201	226,947	9,783	6,730
Walcott, Charles D. and Mary Vaux . . . . .	756,802	1,007,176	44,071	10,532
Walcott Botanical Publica- tions . . . . .	95,190	122,177	5,346	1,223
Zerbee, Francis Brinckle . . . . .	1,561	2,064	90	1,634
Total Restricted Funds . . . . .	\$ 7,261,814	\$ 7,740,085	\$331,823	\$292,471
Total Consolidated Funds . . . . .	\$11,900,977	\$12,392,867	\$531,315	\$292,471



TABLE 13.—*Endowment and Similar Funds Summary of Investments*

<i>Funds</i>	<i>Book value 6/30/73</i>	<i>Market value 6/30/73</i>
<b>INVESTMENT ACCOUNTS</b>		
<b>Freer Fund:</b>		
Cash.....	\$ 60,958	\$ 60,958
Bonds.....	3,564,934	3,604,385
Convertible Bonds.....	1,784,133	1,658,362
Stocks.....	11,764,610	12,955,449
Total.....	\$17,174,635	\$18,279,154
<b>Consolidated Funds:</b>		
Cash.....	\$ 43,873	\$ 43,873
Bonds.....	2,929,742	2,923,584
Convertible Bonds.....	—0—	—0—
Stocks.....	8,927,362	9,425,410
Total.....	\$11,900,977	\$12,392,867
<b>Endowment Fund No. 3:</b>		
Cash.....	\$ 254,522	\$ 254,522
Bonds.....	5,738,342	6,502,133
Convertible Bonds.....	112,000	80,000
Stocks.....	6,432,317	6,358,898
Total.....	\$12,537,181	\$13,195,553
<b>Miscellaneous:</b>		
Bonds.....	\$ 10,063	\$ 10,412
Common Stocks.....	3,322	11,509
Total.....	\$ 13,385	\$ 21,921
<b>TOTAL INVESTMENT ACCOUNTS.....</b>	<b>\$41,626,178</b>	<b>\$43,889,495</b>
<b>OTHER ACCOUNTS</b>		
Notes Receivable.....	\$ 51,486	\$ 51,486
Loan to U. S. Treasury in perpetuity.....	1,000,000	1,000,000
Total Other Accounts.....	\$ 1,051,486	\$ 1,051,486
<b>TOTAL ENDOWMENT AND SIMILAR FUND BALANCES . .</b>	<b>\$42,677,664</b>	<b>\$44,940,981</b>

*Accounting and Auditing*

The private finances of the Institution are regularly audited by independent public accountants. Accounts of the Smithsonian Science Information Exchange and the Smithsonian Research Founda-

tion are also audited regularly in this same manner. All accounts relating to grant and contract monies received from federal agencies are audited annually by the Defense Contract Audit Agency. Federally appropriated funds are subject to occasional audit by the General Accounting Office. In addition, our internal audit staff, which has been strengthened considerably in the past two years, performs continuous audits on a wide range of operations of the Institution. Such audits are particularly helpful in bringing about improved administrative practices.

### *Donors to the Smithsonian*

The Smithsonian Institution gratefully acknowledges gifts and bequests received during fiscal year 1973 from the following:

#### *\$100,000 or more:*

The Atlantic Foundation	The Andrew W. Mellon Foundation
The Edna McConnell Clark Foundation	Time, Incorporated
S. C. Johnson & Son, Inc.	

#### *\$10,000 or more:*

American Council of Learned Societies	Interdisciplinary Communication
American Federation of Information	Associates, Inc.
Processing Societies, Inc.	Mrs. Marguerite H. Kellogg
The Annenberg Fund, Inc.	Keystone Shipping Co.
The Arcadia Foundation	Lilly Endowment, Inc.
The Trustees of the Archives of	The Charles E. Merrill Trust
American Art	The Ambrose Monell Foundation
Battelle Memorial Institute	Philip Morris, Incorporated
Mary Duke Biddle Foundation	National Geographic Society
Mrs. Rosemary B. Carroon	New York State Council on the Arts
Mary Flagler Cary Charitable Trust	State of Ohio
The Robert Sterling Clark Foundation	Mr. and Mrs. Ralph C. Rinzler
Copernicus Society	J. W. Robinson Company
Dr. William H. Crocker	Estate of Bertha M. Ruef
Ford Foundation	The Seafarers International Union
Mary L. Griggs & Mary G. Burke	Seatrains Lines, Inc.
Foundation	Mrs. Arthur Hays Sulzberger
The Daniel and Florence Guggenheim	Transportation Institute
Foundation	Ellen Bayard Weedon Foundation
Henry J. Heinz, II	Estate of George Widener
	World Wildlife Fund

*\$1,000 or more:*

- Academy Tankers, Inc.  
 Aldine-Atherthon, Inc.  
 American Bureau of Shipping  
 American Conservation Association, Inc.  
 American Export Lines, Inc.  
 American Metal Climax Foundation,  
     Inc.  
 Mr. and Mrs. Amyas Ames  
 Anonymous  
 Arthur Andersen & Company  
 Mrs. Edward L. Ayers  
 Mr. and Mrs. Robert R. Barker  
 Mrs. Evelyn F. Bartlett  
 Bath Iron Works Corporation  
 Bethlehem Steel Corporation  
 Mr. William Blackie  
 Dr. and Mrs. Morton K. Blaustein  
 Mrs. Arthur H. Buhl, Jr.  
 Burlington Industries Foundation  
 Mr. and Mrs. John A. Burnham, Jr.  
 Mrs. Douglas Campbell  
 Caterpillar Tractor Company  
 Mr. and Mrs. Edward C. Childs  
 The Coca Cola Company  
 Mr. Marvin J. Coles  
 Continental Oil Company  
 Mr. Richard P. Cooley  
 The Ben Cooperman Memorial  
     Foundation  
 Dana Corporation  
 Dart Industries, Inc.  
 Mr. Paul L. Davies  
 Mr. and Mrs. John W. Dearholt  
 John Deere Foundation  
 Mr. and Mrs. John de Menil  
 Elsie DeWolfe Foundation  
 Mr. John Henry Dick  
 Drug Abuse Council  
 Mr. and Mrs. Maitland A. Edey  
 Dr. William L. Elkins  
 El Paso Natural Gas Company  
 Mr. and Mrs. Alfred U. Elser, Jr.  
 Charles Engelhard Foundation  
 Entomological Society of America  
 Esso Production Research Company  
 Esso Research and Engineering  
     Company  
 Dr. Clifford Evans  
 Exxon Company, U. S. A.  
 Exxon Corporation  
 Mrs. Sophie Fenykoevi  
 First National Bank of Miami  
 Mr. Lawrence Fleischman  
 Mr. and Mrs. Robert B. Flint  
 Mr. H. Crowell Freeman  
 The Fund for Preservation of Wildlife  
     and Natural Areas  
 Mr. Howard M. Garfinkle  
 General Electric Company  
 Sumner Gerard Foundation  
 Gollin Foundation, Inc.  
 Goethe House New York  
 Dr. and Mrs. Crawford H. Greenewalt  
 Mr. Charles A. Greenfield  
 Dr. and Mrs. Morton S. Grossman  
 Mrs. David L. Guyer  
 Edith G. Halpert Foundation  
 Mr. and Mrs. N. Vadim Hammer  
 Dr. and Mrs. Herbert E. Hawkes  
 Hewlett-Packard Company  
 Mrs. J. E. Hightower  
 Susan Morse Hilles Agency  
 Hiram Walker & Sons, Inc.  
 The Holderness Foundation, Inc.  
 Honeybrook Foundation, Inc.  
 International Business Machines  
     Corporation  
 Interstate Oil Transport Company  
 The Iran Foundation, Inc.  
 International Telephone & Telegraph  
     Company  
 Johns Hopkins University  
 Felix and Helen Juda Foundation  
 Kominers, Ford, Schlefer & Boyer  
 S. S. Kresge Company  
 Mr. and Mrs. F. David Lapham  
 Mr. Lewis A. Lapham  
 Mr. Frank Y. Larkin  
 Mr. James F. Lawrence  
 Adele R. Levy Fund, Inc.  
 Mr. Edwin A. Link  
 Mrs. Ellen Lehman Long  
 Mr. and Mrs. Joseph W. Lund  
 Maritime Overseas Corporation  
 Mr. Robert J. Masser  
 Mayuyama & Company  
 Charles A. Meyer Trust  
 University of Michigan  
 Midgard Foundation



The Mobil Foundation, Inc.  
 Moore-McCormack Lines, Inc.  
 Bequest of Conrad V. Morton  
 National Bank of Detroit  
 National Home Library Foundation  
 National Steel and Shipbuilding Co.  
 The Nature Conservancy  
 Nautilus Foundation, Inc.  
 The Newport News Shipbuilding and  
   Dry Dock Company  
 Northrop Corporation  
 Northwest Industries Foundation, Inc.  
 Madame Nesta Obermer  
 Ohio Arts Council  
 Olin Corporation Charitable Trust  
 Palisades Foundation, Inc.  
 Mr. and Mrs. Perry R. Pease  
 James C. Penney Foundation, Inc.  
 The Petrie Foundation  
 Piasecki Foundation  
 Mrs. Marjorie Merriweather Post  
 Price Foundation, Inc.  
 R. J. Reynolds Industries, Inc.  
 Mr. and Mrs. Donald H. Robinson  
 Mr. John D. Rockefeller, 3rd  
 Mr. Nelson A. Rockefeller  
 Helena Rubinstein Foundation, Inc.  
 Mr. Merritt K. Ruddock

Sidney Printing and Publishing Co.  
 Mr. and Mrs. Henry H. Silliman  
 Alfred P. Sloan Foundation  
 Mrs. Otto L. Spaeth  
 Leonard and Rose A. Sperry  
   Philanthropic Fund  
 Stack's Coin Company  
 Mr. Norman C. Stone  
 Mr. and Mrs. Gardner D. Stout  
 The Allie L. Sylvester Fund, Inc.  
 The Tai-Ping Foundation, Inc.  
 Mr. and Mrs. Bertrand L. Taylor, III  
 Texas Instruments Foundation  
 Mr. John S. Thacher  
 Mr. and Mrs. John L. Tishman  
 Todd Shipyards Corporation  
 Marcia Brady Tucker Foundation  
 Tupper Foundation  
 Mr. and Mrs. Milton Turner  
 The Raymond John Wean Foundation  
 Mr. and Mrs. Clifford B. West  
 Mr. and Mrs. Joshua C. Whetzel  
 Winn Dixie Stores Foundation  
 Mrs. Frank Wisner  
 Woodheath Foundation, Inc.  
 Charles W. Wright Foundation of  
   Badger Meter, Inc.  
 Xerox Corporation

*\$500 or more:*

Mr. Edward E. Abrahams  
 Allied Chemical Foundation  
 Alsdorf Foundation  
 American Petroleum Institute  
 Anonymous  
 Mr. Arthur R. Armstrong  
 Avco Corporation  
 Mr. and Mrs. Leonard L. Bacon  
 Mrs. James C. Barbour  
 Mr. Harry Hood Bassett  
 Mr. Clay P. Bedford  
 Mr. William Peter Blatty  
 Joe Brotherton-Digiorgio Corp.  
 Brunswick & Fils, Inc.  
 Dr. and Mrs. Curt Buhler  
 Mrs. J. Oliver Cunningham  
 Ms. Priscilla Cunningham  
 Catholic University  
 Mr. Raymond Cerf

Charron Foundation  
 Miss Mary Croyle  
 Dr. Jo Ann Deatherage  
 Mr. and Mrs. Robert S. Dickerman  
 Mr. and Mrs. Theodore Dominick  
 Dover Publications  
 Mr. Raphael Esmerian  
 Dr. and Mrs. Charles B. Fals  
 Ferndale Foundation, Inc.  
 Mr. David E. Finley  
 Mr. and Mrs. Robert W. Fuller  
 George Washington University  
 B. F. Goodrich Company  
 Greeff Fabrics, Inc.  
 Dr. and Mrs. John N. Grekin  
 Miss Margaret Gurney  
 Mr. David J. Hasinger  
 Colonel and Mrs. G. Frederick Hawkins  
 Mr. and Mrs. Frank Henderson

*\$500 or more;—Cont.*

Mr. and Mrs. Leopold Hirschfeldt	Propeller Club of U. S.,
Johnson City Foundation	Port of Washington
Mr. Samuel C. Johnson	Mr. John Shedd Reed
Mrs. Phillis B. Lambert	Dr. S. Dillon Ripley
Mr. Harold F. Linder	Dr. and Mrs. David Sacks
Dr. and Mrs. Merrill Lipsey	Mr. and Mrs. Milton Sass
Mr. Earl L. Loe	F. Schumacher & Company
Mrs. Katherine Adams Lusk	Mr. Sidney N. Shure
Mrs. John H. Magruder	Mr. Walter H. Simson
Mr. Frank E. Masland	Mrs. Helen Belding Smith
Mr. and Mrs. Leonard Mautner	Mrs. Albert F. Sperry
Mr. Paul Mellon	Colonel and Mrs. Pat M. Stevens
Mid-Continent Oil and Gas Assoc.	Mr. Julius Stelow
Mr. and Mrs. Myron A. Minskoff	Levi Strauss Foundation
Mr. Otto Natzler	Stroheim & Romann
Mr. and Mrs. Newton Noble	Mr. Walter A. Stryker
New York Zoological Society	Summerhill Foundation
Mr. and Mrs. Robert Nourse	Transcontinental Gas Pipe Line Corp.
Ogden Marine, Inc.	U. S. News & World Report
Mr. Israel Orr	Mrs. Velma P. Watts
Ove Arup & Partners	Mr. and Mrs. H. Westcott
Overseas Bulk Tank Corporation	West Point Pepperell
Propeller Club of U. S., Port of Detroit	Wyeth Endowment for American Art
Propeller Club of U. S.,	
Port of New Orleans	

We also gratefully acknowledge other contributions in the amount of \$115,187.87 received from 5,038 persons during 1973.

## PEAT, MARWICK, MITCHELL &amp; CO.

CERTIFIED PUBLIC ACCOUNTANTS  
1025 CONNECTICUT AVENUE, N. W.  
WASHINGTON, D.C. 20036

*The Board of Regents  
Smithsonian Institution:*

We have examined the balance sheet of the Private Funds of Smithsonian Institution as of June 30, 1973 and the related statements of changes in fund balances for the year then ended. Such statements do not include the accounts of the National Gallery of Art, the John F. Kennedy Center for the Performing Arts, nor other departments, bureaus and operations administered by the Institution under Federal appropriations. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the aforementioned statements present fairly the financial position of the Private Funds of Smithsonian Institution at June 30, 1973, and the changes in its fund balances for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

PEAT, MARWICK, MITCHELL & Co.

September 19, 1973



# SMITHSONIAN INSTITUTION PRIVATE FUNDS

Balance Sheet, June 30, 1973

(With comparative figures for 1972)

<i>Assets</i>		1973	1972
<b>CURRENT FUNDS:</b>			
Cash:			
In U. S. Treasury .....	\$	293,324	172,821
In banks and on hand .....		413,499	290,917
Total cash .....		706,823	463,738
Investments, at cost (market value \$6,078,226; \$4,149,530 in 1972) (note 1) .....		6,223,305	4,186,224
Receivables:			
Accounts .....		935,486	774,332
Advances—travel and other .....		172,568	160,106
Reimbursements—grants and contracts .....		1,061,872	986,797
		2,169,926	1,921,235
Inventories, at lower of average cost or net real- izable value .....		602,254	567,210
Prepaid expenses .....		456,659	114,047
Deferred magazine expenses (note 1) .....		769,670	749,226
Equipment (less accumulated depreciation of \$303,385; \$189,804 in 1972) (notes 1 and 3) ....		328,107	408,211
Total current funds .....	\$	11,256,744	8,409,891
<b>ENDOWMENT AND SIMILAR FUNDS (notes 1 and 2):</b>			
Cash .....		359,353	1,299,088
Notes receivable .....		51,486	95,316
Investments—at cost (market value \$43,530,142; \$48,629,718 in 1972) .....		41,266,827	32,273,457
Loan to U. S. Treasury in perpetuity .....		1,000,000	1,000,000
Total endowment and similar funds .....	\$	42,677,666	34,667,861
<b>REAL ESTATE ACQUISITION FUND (note 5):</b>			
Real estate, at cost or appraised value at date of gift (note 1) .....		3,471,825	3,326,956
Total real estate acquisition fund .....	\$	3,471,825	3,326,956

See accompanying notes to financial statements.

SMITHSONIAN INSTITUTION  
PRIVATE FUNDS

Balance Sheet, June 30, 1973

(With comparative figures for 1972)

*Liabilities and Fund Balances*

	1973	1972
<b>CURRENT FUNDS:</b>		
Note payable (note 3).....	\$ 295,761	383,691
Accounts payable.....	875,716	421,213
Accrued liabilities.....	825,949	669,065
Deferred income:		
Magazine subscriptions.....	2,746,892	1,931,311
Other.....	290,560	117,019
	<hr/>	<hr/>
Total liabilities.....	5,034,878	3,522,299
Fund balances:		
Unrestricted.....	2,323,958	1,781,105
Restricted:		
Unexpended income from endowments.....	512,895	550,580
Gifts.....	3,304,054	2,505,906
Grants and contracts.....	80,959	50,001
	<hr/>	<hr/>
Total fund balances.....	6,221,866	4,887,592
	<hr/>	<hr/>
Total current funds.....	\$11,256,744	8,409,891
	<hr/> <hr/>	<hr/> <hr/>
<b>ENDOWMENT AND SIMILAR FUNDS:</b>		
Fund balances:		
Endowment funds.....	36,913,730	29,320,809
Funds functioning as endowment.....	5,763,936	5,347,052
	<hr/>	<hr/>
Total endowment and similar funds.....	\$42,677,666	34,667,861
	<hr/> <hr/>	<hr/> <hr/>
<b>REAL ESTATE ACQUISITION FUND:</b>		
Mortgage notes payable (note 4).....	432,534	353,138
Fund balance.....	3,039,291	2,973,818
	<hr/>	<hr/>
Total real estate acquisition fund.....	\$ 3,471,825	3,326,956
	<hr/> <hr/>	<hr/> <hr/>

SMITHSONIAN INSTITUTION  
PRIVATE FUNDS

Statement of Changes in Current Fund Balances  
Year ended June 30, 1973

	<i>Unrestricted funds</i>			<i>Restricted funds</i>		
	<i>Total</i>	<i>General</i>	<i>Activities</i>	<i>Income from endowments</i>	<i>Gifts</i>	<i>Grants and contracts</i>
<b>REVENUE AND OTHER ADDITIONS:</b>						
Net sales.....	\$ 8,704,654	\$ 68,242	\$8,318,992	—	\$ 317,420	—
Less cost of goods sold.....	5,206,784	—	5,206,784	—	—	—
Gross profit.....	3,497,870	68,242	3,112,208	—	317,420	—
Grants and contracts, net.....	9,027,076	—	—	—	—	9,027,076
Investment return from endowment and similar funds:						
Investment income.....	1,211,762	176,244	—	1,035,518	—	—
Portion of investment gain appropriated (note 2).....	506,769	82,463	—	424,306	—	—
Total investment return from endowment and similar funds.....	1,718,531	258,707	—	1,459,824	—	—
Other investment income.....	228,043	177,210	—	—	50,833	—
Gifts, bequests and foundation grants....	3,296,958	32,697	157,089	72,004	3,035,168	—
Rental and commissions.....	243,184	229,149	—	—	14,035	—
Other.....	495,476	76,744	6,687	116,805	295,240	—
Total revenue and other additions.....	18,507,138	842,749	3,275,984	1,648,633	3,712,696	9,027,076
<b>EXPENDITURES AND OTHER DEDUCTIONS:</b>						
Salary and benefits.....	10,233,027	2,494,621	1,777,108	488,246	1,131,469	4,341,593
Purchases for collection.....	390,888	22,759	—	279,183	70,054	18,886
Travel and transportation.....	698,166	63,749	49,775	58,520	145,820	380,302
Equipment and facilities.....	822,883	182,338	54,759	26,104	92,949	466,737
Supplies and materials.....	1,116,006	73,501	106,718	74,860	406,394	454,533
Rent and utilities.....	100,905	29,350	5,634	—	21,215	44,706
Communications.....	139,966	59,960	20,274	69	14,997	44,666
Contractual services.....	3,615,593	204,077	557,970	375,890	1,094,031	1,383,663
Promotion and advertising.....	70,389	—	70,389	—	—	—
Depreciation.....	19,990	—	19,990	—	—	—
Administrative expenditures.....	(125,000)	(2,771,674)	409,400	106,241	259,218	1,871,823
Total expenditures and other deductions.....	17,082,813	358,681	3,072,017	1,409,113	3,236,147	9,006,803
Excess of revenue and other additions over expenditures and other deductions.....	1,424,325	484,068	203,967	239,520	476,549	20,273
<b>TRANSFERS:</b>						
Real estate acquisition fund.....	(65,473)	—	—	—	(65,473)	—
Donor designated endowment.....	(5,500)	—	—	—	(5,500)	—
Income added to endowment principal.....	(66,350)	—	—	(66,350)	—	—
Cost sharing—grants and contracts.....	—	(7,816)	—	—	(15,856)	23,656
For designated purposes.....	(21,128)	(102,964)	(34,402)	(279,255)	408,428	(12,907)
Endowment appropriated.....	68,400	—	—	68,400	—	—
From activities to general funds.....	—	169,565	(169,565)	—	—	—
Total transfers.....	(90,051)	58,785	(203,967)	(277,205)	321,599	10,749
Net increase (decrease) in fund balances....	1,334,274	542,853	—	(37,685)	798,148	30,922
Fund balances at June 30, 1972.....	4,887,592	1,781,105	—	550,580	2,505,906	50,000
Fund balances at June 30, 1973.....	\$ 6,221,866	\$ 2,323,958	—	\$ 512,895	\$3,304,054	\$ 80,922

See accompanying notes to financial statements.



SMITHSONIAN INSTITUTION  
PRIVATE FUNDS

Statement of Changes in Endowment and Similar Fund Balances

Year ended June 30, 1973

		Endowment funds			Funds functioning as endowment
	Total	Total	Freer	Other	
REVENUES AND OTHER ADDITIONS:					
Investment return:					
Realized gain on investment . . .	\$ 8,383,058	7,971,017	1,978,319	5,992,698	412,041
Less portion of investment gain appropriated to current funds .	506,769	424,306	250,805	173,501	82,463
Net gain added to principal.	7,876,289	7,546,711	1,727,514	5,819,197	329,578
Gifts and bequests . . . . .	108,938	42,760	—	42,760	66,178
Total revenues and other additions . . . . .	7,985,227	7,589,471	1,727,514	5,861,957	395,756
TRANSFERS:					
Donor design endowment fund . . .	5,500	5,500	—	5,500	
Income added to principal . . . . .	66,350	66,350	—	66,350	
Designated purposes . . . . .	21,128	—	—	—	21,128
Endowment appropriated . . . . .	(68,400)	(68,400)	—	(68,400)	
Total transfers . . . . .	24,578	3,450	—	3,450	21,128
Net increase for the year . . . . .	8,009,805	7,592,921	1,727,514	5,865,407	416,884
Fund balances at June 30, 1972 . . .	34,667,861	29,320,809	15,447,121	13,873,688	5,347,052
Fund balances at June 30, 1973 . . .	\$42,677,666	36,913,730	17,174,635	19,739,095	5,763,936

See accompanying notes to financial statements.

SMITHSONIAN INSTITUTION  
PRIVATE FUNDS

Statement of Changes in Real Estate Acquisition Fund Balance

Year ended June 30, 1973

Fund balance at June 30, 1972, as previously reported . . . . .	\$1,973,818
Adjustment—to record gift funds received for the acquisition of Freer Gallery of Art building (note 1) . . . . .	1,000,000
Fund balances at June 30, 1972, as adjusted . . . . .	2,973,818
Transfer from gift funds—land acquisition:	
Chesapeake Bay Center . . . . .	\$78,104
Hillwood Estate . . . . .	10
Transfers to gift funds—land sales—Chesapeake Bay Center . . . . .	(12,641)
Fund balance at June 30, 1973 . . . . .	\$3,039,291

See accompanying notes to financial statements.

## SMITHSONIAN INSTITUTION PRIVATE FUNDS

### Notes to Financial Statements June 30, 1973

#### *1. Summary of Significant Accounting Policies*

- a. The accompanying financial statements have been prepared on the accrual method of accounting, except that:
- (1) No liability is reflected for annual leave earned by employees but not taken (approximately \$200,000 at June 30, 1973).
  - (2) Investments are stated at cost or market value at date of gift. Bond premiums and discounts are not being amortized.
  - (3) Interest income is not accrued on endowment and similar fund investments.

The aggregate effect of the above accounting policies, which are commonly followed by not-for-profit organizations, is estimated not to have a material effect on the accompanying financial statements.

- b. The accounts of the Institution are maintained in accordance with the principles of "fund accounting" whereby resources are classified into funds in accordance with activities or objectives specified.

Restricted funds may only be utilized in accordance with the purposes established by the source of such funds and are in contrast with unrestricted funds over which the Institution retains full control to use in achieving any of its institutional purposes.

Endowment funds are subject to the restrictions of gift instruments and are not wholly expendable on a current basis. Funds functioning as endowment have been established by the governing board for the same purposes as endowment funds, any portion of such funds may be expended on a current basis.

- c. Subscription income and promotional expenses in respect to the Institution's magazine are deferred and taken into income and expense over the subscription period.

- d. Fixed assets are recorded as follows:

Museum shop and computer equipment—those purchased with private funds are capitalized in the current fund.

Land and buildings—those acquired by gift or by use of gift funds are recorded in the real estate acquisition fund at cost or appraised value at date of gift, except for gifts of certain islands in the Chesapeake Bay, Carnegie Mansion, and Hillwood Estate, which have been recorded at nominal values. Gift funds in the amount of \$1,000,000 received toward the acquisition of the Freer Gallery of Art were not recorded in the real estate acquisition fund when received in 1916. In order to reflect land and buildings on a consistent basis, the prior years' financial statements have been restated to reflect such amount in the real estate account. All other land and buildings (principally acquired with federal funds) and furniture, equipment, works of art, living or other specimens are not reflected in the accompanying financial statements.

Museum shops and computer equipment are depreciated on a straight-line

basis over an estimated useful life of five years. In accordance with generally accepted accounting principles for not-for-profit organizations, depreciation is not provided on non-income producing assets.

## *2. Endowment Funds and Funds Functioning as Endowments*

Effective July 1, 1972, the Institution adopted the "total return" approach to investment management of endowment funds and funds functioning as endowment. Under this approach, the total investment return is considered to include realized and unrealized gains and losses in addition to interest and dividends. In applying this approach, it is the Institution's policy to limit the amount available for current expenditures to interest and dividends received where the market value of the assets of any fund is less than 110 percent of the historic dollar value (value of gifts at date of donation). For 1973, the Institution provided  $4\frac{1}{2}$  percent of the five year average of the market value of each fund (adjusted for gifts and transfers during this period) as being available for current expenditures.

The change to the total return approach resulted in appropriations of gains (realized or unrealized) from endowment funds and funds functioning as endowment to the current unrestricted fund (\$82,463) and to the current restricted fund (\$424,306) representing the excess of the amount made available for current expenditures over interest and dividends received for the year ended June 30, 1973.

## *3. Note Payable*

The note payable in the principal amount of \$295,761, which is non-interest bearing, is secured by computer equipment and is payable in monthly installments of \$7,993 to June 30, 1976.

## *4. Mortgage Notes Payable*

The mortgage notes payable are secured by first deeds of trust on property acquired in connection with the Chesapeake Bay Center. Funds for the repayment of these notes will be transferred from certain restricted funds—gifts, which are designated for the development of the Chesapeake Bay Center. The details of the mortgage notes payable are as follows:

- a. A \$199,500 note on property acquired for \$376,000. The note is payable in fifteen consecutive semi-annual installments of \$13,300, plus interest at the prevailing prime rate on the due date of payment but not less than 8 percent, with the final payment due July 1, 1980.
- b. A \$33,034 note on property acquired for \$118,533. The note is payable in monthly installments of \$451, including interest at the rate of 6 percent, with the final payment due on November 1, 1989.
- c. A \$60,000 note on property acquired for \$120,000. The note is payable in annual installments of \$30,000, plus interest at the rate of 7 percent on the unpaid balance, with the final payment due November 1, 1974.
- d. A \$140,000 note on property acquired for \$157,500. The note is payable in semi-annual installments of \$10,000, plus interest at the rate of 6 percent on the unpaid balance, with the final payment due November 7, 1979.



#### 5. *Real Estate Acquisition Fund*

The real estate acquisition fund includes certain land and buildings acquired by gift or purchased from restricted funds. This property is currently being used for museums, the Chesapeake Bay Center and a conference center.

#### 6. *Pension Plan*

The Institution has a contributory pension plan providing for the purchase of retirement annuity contracts for all employees meeting certain age and length of service requirements. Under terms of the plan, the Institution contributes the amount necessary to bring the total contribution to 12 percent of the participants' compensation subject to social security taxes and to 17 percent of the participants' compensation in excess of that amount. The total pension expense for the year was \$688,782.

## SCIENCE

THE PAST YEAR was a period of increased activity for SCIENCE, in all of its aspects, at the Smithsonian. The year saw plans for expansion, new construction, and a turnover of key personnel.

Fred Whipple, Director of the Smithsonian Astrophysical Observatory, announced his retirement after 17 years of outstanding service to the Smithsonian. He has been succeeded by Dr. George Field, Professor of Astronomy at Harvard, who heads the newly created Center for Astrophysics, which will bring together, under one administrative head, the cooperative programs which the Smithsonian and Harvard have enjoyed since 1955.

The year 1973 also brought a change in the directorship of the National Museum of Natural History. Dr. Richard Cowan, who served as Director for 10 years, stepped down to pursue his research interests in his new position as Senior Scientist in the Department of Botany. He was succeeded by Dr. Porter Kier who served as Chairman of the Museum's Department of Paleobiology from 1967 to 1972.

Dr. Adair Fehlmann, Director of the Smithsonian Oceanographic Sorting Center, was named this past year as the Acting Director of the Fort Pierce Bureau.

In 1973 ground was broken and construction begun for the newest museum on the mall, the National Air and Space Museum. This museum, which will chronicle man's achievements in flight, is expected to open to the public on 4 July 1976.

The Master Plan for the National Zoological Park received final approval from all necessary bodies, and plans are now going forward on a new lion and tiger exhibit and the complete renovation of the 1904 monkey house.

The Chesapeake Bay Center for Environmental Studies (CBCES) began a pilot program in environmental education this past year. The program, designed to introduce concepts of ecology in urban and natural settings to inner city and suburban tenth graders, was conducted in cooperation with Camp Letts, a

YMCA facility adjoining the Center. A number of other educational programs were offered at CBCES to carry out the "increase and diffusion of knowledge" theme of the Smithsonian.

The Institution-wide conference on priorities in February recommended closer cooperation among the science bureaus in environmental sciences; and the past year witnessed an increase in such cooperation. Substantial progress also was made in 1973 in interbureau research of the Environmental Science Program. Closer cooperation was seen among the bureaus on many problems, including the problem of endangered species, which received wide national scrutiny this past year.

Finally, the science bureaus at the Smithsonian once again played a prominent role in matters of national and international concern. Smithsonian scientists and administrators provided representatives and advisory services to the Council on Environmental Quality (CEQ), to the United States delegation to the International Whaling Commission, the Second World Conference on National Parks, the Endangered Species Convention, and to the Royal Society for ecological studies of atolls in the Pacific and Indian Oceans. Smithsonian scientists continued their fruitful collaboration with foreign governments on every continent and provided technical assistance on environmental projects. The joint Smithsonian-Peace Corps program continued to provide scientific technicians to many developing countries.

Details of these concerns and scientific accomplishments in other areas of research by the individual bureaus, in fiscal year 1973, follow.

## National Museum of Natural History

The year 1973 saw another of the infrequent changes in the directorship of the National Museum of Natural History. Dr. Richard S. Cowan who for 10 years served in the Office of Director, first as Assistant Director and for the past 7 years as the Director, returned to his major interest—research on New World Leguminosae—and is now a Senior Scientist in the Museum's Department of Botany. Dr. Cowan brought to the Office of Director many innovative and stimulating ideas and programs. Now, well-equipped facilities ranging from physical sciences and palynology laboratories to sophisticated research tools, such as the Scanning Electron Microscope, have been



provided the scientists. Support for the scientific staff, both in terms of well-qualified technicians and of more adequate resources, was increased substantially. A new system of evaluation of the scientists, through peer group study and deliberation, has brought more prompt and adequate recognition of professional competence. These and many other solid achievements will surely provide Dr. Cowan with a sense of accomplishment fully justifying his 10-year detour from full-time involvement in botanical studies.

After months of careful deliberations by a search committee established by the Secretary and chaired by Dr. David Challinor, Assistant Secretary for Science, that body concluded the person best qualified for and suited to the demanding role of Director of one of the world's largest natural history museums was a member of the Museum's own staff, Dr. Porter M. Kier. Previously Dr. Kier had served from 1967 to 1972 as Chairman of the Department of Paleobiology. After completing undergraduate studies at the University of Michigan, Dr. Kier remained at that institution to receive his M.S. degree, majoring in paleontology. In 1951-1952 he was a Fulbright Scholar at the University of Cambridge (England) being awarded a Ph.D. degree by that institution in 1954. After joining the staff of NMNH in 1957, Dr. Kier was named a Guggenheim Fellow in 1967 and served as President of the American Paleontological Society in 1972-1973. Within the past few months Dr. Kier was accorded the signal honor of being awarded the Sc.D. degree by the University of Cambridge.

Dr. Kier brings to the directorship an outstanding record as an innovative researcher of almost indefatigable energy and a dedication to the Museum and the magnificent collections which it contains. Thus, as we open a new chapter in the life of this the largest of the museums, we can look forward to another chronicle of scientific accomplishments under his stimulating and perceptive leadership.

Over the past 3 years the National Museum of Natural History has been the primary supporter of the development of the Smithsonian's computer system (SELGEM), which is an automatic data processing system with wide versatility. Use of SELGEM expanded rapidly in the Museum during fiscal year 1973 and now all seven departments are applying the system in some phases of research and collection management. Primary emphasis is placed on capture of data about incoming specimens, but older collections which are of some special interest to

scientists are not neglected. Over 200,000 specimen records already have been compiled through SELGEM, and innovations and improvements in procedures promise to bring about a rapid increase in that figure. Scientists and collection managers can retrieve any information rapidly from any of more than 80 files and the data can be printed in almost any order and format, or the data analyzed statistically and even charted. Projects now getting underway will increase production and decrease record costs by using SELGEM files and the computer to produce specimen labels, catalogue cards, and ledgers. In specific examples—in the Department of Entomology a procedure has been fully tested which will use a computer-driven typesetting machine to publish a revised edition of the Hymenoptera catalogue and permit updating at any time at a minimum cost. SELGEM is being used in the Department of Mineral Sciences to gain better inventory control over collections of valuable gems and minerals, and in 1973 the Department of Vertebrate Zoology began developing plans for the use of SELGEM to process and account for loans of specimens. The overall effect of SELGEM application has been to bring greater thoroughness and organization to collection management and to provide a better system for storing and retrieving information in a readily available form for use in manifold ways by scientists, not only in this but in other countries.

Dr. Gordon D. Gibson, an anthropologist and curator in NMNH, spent almost the entire past year in Angola continuing ethnographic research among the Himba people. The results of his earlier work among Himba and Herero in Namibia were of such significance that the present studies received support from the National Institutes of Health through a grant to include a study of the fertility of the Himba population.

Two aspects of the current work are of outstanding importance. First, from a technical standpoint, for the first time, so far as we know, a film (made earlier) entitled *Himba Wedding* was shown to Himba audiences during which their spontaneous reactions and comments were recorded. This technique of developing “feedback” was found extremely useful in clarifying some of the rites recorded in the film, permitting a more complete interpretation of their culture and better record for use of students of life crisis ceremonies. Clearly, this new and important research tool will find many applications and will enhance considerably an understanding of other peoples, their cultures, customs, and important ceremonies.



Secondly, and perhaps of greater social significance is the information developed on marital patterns and childbirth. A carefully selected sample of Himba women ranging in age from fifteen years upward were studied in detail. While the results are still being analyzed, it is apparent that in spite of the absence of any methods of birth control or, in fact, any real interest in limiting birth, the Himbas have a remarkably low birth rate. The interest of public health and United Nations officials, as well as the medical profession in almost all countries, in this phenomenon is obvious. The explanation for this situation is not yet clear, but an area for important research has been identified and further studies in collaboration with medical researchers will follow.

During the summer of 1972, Dr. William W. Fitzhugh and his associates continued archeological studies at Hamilton Inlet, Labrador, on prehistoric cultures and paleo-ecology that were begun in 1969. This research, which in the past few years has received support from the National Geographic Society, has resulted in the complete excavation of a large site at Rattlers Bight that was occupied 4000 years ago by Indians of the Maritime Archaic tradition. This is one of the largest prehistoric settlements known on the icy shores of Labrador and has over the past 2 years yielded information on these seagoing Indians which allows us to describe their activities in some detail. The site was occupied seasonally from spring to fall while the Indians hunted seals and sea birds and fished for salmon, trout, cod, and perhaps whales using techniques which today we associate more with Eskimos.

The site has confirmed that Indians were actually the first occupants of the subarctic and arctic regions of the Labrador coast, preceding the Eskimo by some 500–1000 years. Further, it now appears that toggling harpoons were used for open-water seal hunting by these Maritime Archaic people and that this important hunting device was passed to Eskimos in northern Labrador by 2000 B.C., becoming the dominant feature of Eskimo technology.

In 1973, in conjunction with the archeological field work, a new program of paleo-ecological research was begun. Funded under the Museum's new palynology program, a series of samples were taken from pollen-rich lake sediments on the central Labrador coast ranging from the boreal forest to the tundra. Preliminary results of this research suggest that glacial ice had melted off the interior of Labrador by approximately



6000 years ago and that following this deglaciation the Hamilton Inlet region was tundra for 2000 years before the introduction of the boreal forest. Surprisingly, the outer Labrador coast appears to have remained ice-bound virtually until the arrival of the Maritime Archaic Indians 4000 years ago. This suggests, contrary to expectation, that the Hypsithermal warm period (ca. 6000–4000 years ago) was not felt in the coastal Labrador region and that higher ocean temperatures in the North Atlantic may actually have increased the flow of cold arctic waters from the polar sea southward along the Labrador coast.

Since 1971 the NMNH has been host to annual seminars on paleopathology, the most recent of which was begun in January 1973. The major objective of these seminars is to provide high-level instruction for scholars studying the significance of disease in human microevolution. During the past 10,000 years man has been subject to the same basic pressures for biological change that have characterized the evolutionary processes of all biological organisms. Human adaptation to different or changing environmental situations involves complex relationships between the genetic potentials of a human population and its natural and cultural environment. In addition to disease, other factors, such as climate, vegetation, and nutrition, provide limiting conditions on the survival and reproductive potential of individuals.

Dr. Donald J. Ortner has given leadership to this major research and teaching program directed to the study of the effect of disease on biological change in human groups. Since the major source of data on disease in nonliving populations is skeletal remains, the major focus of this program is the study of those diseases which affect bone. To encourage high-level research, the seminar series brings together leading international authorities on orthopaedic pathology, radiology, calcified tissue biology, and physical anthropology for a 10-week period. Advanced students having a research interest in paleopathology are drawn primarily from universities in North America. The Museum is uniquely equipped to provide leadership in this field because of its professional staff and the outstanding collection of human skeletons in the Department of Anthropology.

These seminars have provided a significant impetus for studies on ancient disease as evidenced by the growing interest in them and the fact that at least three participants are now preparing doctoral dissertations related to the training they received during the series.



Dr. Edward S. Ayensu, Chairman of the Museum's Department of Botany, using night vision equipment in observing the habits of fruit-eating bats in West Africa. Bats have been known to destroy over one-third of the ripe mangoes in this region and a better understanding of plant/animal relationships is needed to aid in protecting this food supply.



The establishment of a Palynological Laboratory this past year in the National Museum of Natural History represents a highly significant achievement in the Museum's research program. The Laboratory functions primarily in basic research—the morphology and anatomy of pollen grains, their identification and the adaptive significance of the external variations found. This information is utilized to interpret and clarify systematic relationships and breeding systems. As a direct result of the operation of this new laboratory, the Museum is in a position to develop an exchange program with other palynological institutions and an extensive reference collection of modern pollen slides is being acquired which will be conveniently available to the botanical community.

The behavioral studies of nocturnally active animals, such as bats, have recently been greatly enhanced by the use of various types of night-vision equipment. Of special interest is the "Owl Eye," which is capable of multiplying a unit of ambient light about twenty thousand times. This sophisticated equipment developed by the Department of Defense and loaned to the Museum for its research is being used for the study of tropical fruit-eating bats and will permit a more accurate assessment of the interaction between bats and plants without interfering with the normal behavior of these flying mammals during feeding, mating, or roosting.

It is expected that the availability of this night-vision device will contribute substantially to an understanding of the mysteries surrounding nocturnal activities of plants and animals.

During the year, a number of the Museum's entomologists commenced studies utilizing the remarkable capabilities of the Scanning Electron Microscope (SEM). For example, Dr. Richard W. Baumann of the newly instituted Aquatic Entomology Program included in his studies a survey of the eggs of stoneflies (order Plecoptera). Quite unexpectedly, the detailed photographs made possible by the SEM revealed that the eggs of *Neoperla clymene* (Newm.) from different parts of the United States differ radically in structure. This led to a closer study of all stages, with the result that what has appeared to be one widely distributed species, turns out to be two complexes of closely related species. One complex possesses ribbed eggs and the other complex punctate eggs, which suggests major differences in habits or habitat selection. Such discoveries underline the necessity for careful systematic studies before the initiation of large-scale environmental projects that might result in the





*Cliona lampa*, burrowing sponge from Bermuda. *Top*: As formerly observed through light microscope (1200 $\times$ ). *Bottom*: Details as observed through Scanning Electron Microscope (6600 $\times$ ).

extinction of species of restricted range or whose success depends on the accurate prediction of the behavior of a species. The case closely parallels that of the European malaria-bearing mosquito that was finally resolved with the discovery, after an examination of the egg stage, that a complex of closely related species were involved, each of which differed significantly in its ability to transmit malaria, thus explaining for the first time why

the presence of the "Anopheles mosquito" could not be correlated with the presence or absence of malaria.

A second project involving the SEM undertaken this past year was the investigation by Dr. Paul J. Spangler of the possible use for taxonomic purposes of the maxillary palpi of water beetles (order Coleoptera). It was discovered that the irregularities previously observed actually were caused by branched sensillae (totally different from anything before reported) that were embedded in the cuticle. It has long been known that their antennae (usually the primary sensory structure) had evolved into organs associated with respiration. This new information gained from the study of photographs produced by the SEM now makes it clear that these palpi have assumed much of the sensory function that is found in the antennae in most other insects. Thus, a study designed to improve the identification of these beetles has led to a new understanding of the ability of these insects to adapt themselves to their environment.

Another important study of the past year being conducted by Dr. W. Donald Duckworth and Dr. Thomas D. Eichlin (a presidential intern) involves a complex of moths whose distribution appears to be related to the distribution of gourds and squashes in the Western Hemisphere. The larval forms of the moths, commonly referred to as squash borers, live within the stems and roots of the host plant. The insect and plant obviously are intimately associated, the structure and chemistry of the squash species being essential to the survival of the moth species. The researchers hope, therefore, to be able to correlate the evolution of the species of the squash borer complex with the evolution and dispersal of their respective plant hosts. Information can thus be generated for the botanist and the entomologist by studying either side of the relationship. There is now good reason to believe that this relationship will prove to be a textbook example of animal-plant coevolution. Some conclusions resulting from this study also may shed further light on the history of man in the New World Tropics. Archeological evidence indicates that man probably has cultivated squashes and gourds for nearly 10,000 years. It appears that the distributional ranges of the moth species converge on that region in southern Mexico thought by some to be the center of origin and dispersal of these plants and possibly associated with the migrations of early man.

A few years ago Museum scientists became aware of a potentially serious problem at Charlotte Harbor, Florida, which

is threatened by pollution as a result of rapid exploitation of nearby land through a nationwide promotion campaign. Dr. Roger F. Cressey, together with his associates, is now conducting a long-term investigation of the copepods of Charlotte Harbor, with emphasis upon study of life cycles of the parasites, population densities and fluctuations, "susceptible ages" for the fish hosts, and effects of environmental changes upon parasite populations.

The results of this long-term study will be of extreme value to scientists working in many fields. "Natural pollution" in the form of a Red Tide which killed a great number of fishes in 1971 has had some spectacular effects on their copepod parasites. Data from the summers of 1970, 1971, and 1972 show that during the Red Tide summer (1971), the number of parasites per fish dropped to 10–20 percent of the numbers found in 1970. However, in 1972, numbers increased to a level far higher than those recorded before the Red Tide. The reasons for such an increase are unknown; but it is expected that present investigations will show whether or not such high numbers have been maintained and should allow some prediction of causes and effects of this phenomenon.

Scientists in the NMNH during the past year have been involved in seeking answers to such questions as: What kinds of animals and plants can one find on an undisturbed Caribbean coral reef? How do they interact with each other? What effects do changes in light, temperature, and wave action have on these organisms? How do populations change with time, and with increasing influence of man? Partial answers to some of these questions have already been provided by previous research on coral reefs but many remain unanswered. The IMSWE Program (Investigations of Marine Shallow-Water Ecosystems), supported by the Smithsonian's Environmental Science Program, is designed to provide answers to these questions by enabling Smithsonian and collaborating scientists to undertake long-term studies of selected Caribbean reefs. The current site is Carrie-Bow Cay, a very small ( $100 \times 350$  feet) island which stands on the barrier reef extending along the coast of British Honduras. Approximately seventeen Museum scientists are involved in the IMSWE Program; their studies range from the analysis of the structure of the reefs themselves to a study of the effects of terrestrial plant and animal communities on the Cay ecosystem. The program has been in operation for approximately eighteen months and much baseline data on the kinds of animals living



in association with the reef have been acquired. Current investigations include observations of ecological changes with passage of time, so that such changes can be better understood, and their effects properly interpreted.

Although marine nematodes, a type of worm, are a major part, in numbers of species and individuals, of the living creatures found in the ocean depths, they have remained essentially unstudied because of the technical problems of retrieving them. Improved sampling techniques have recently been developed so that now large collections are available for study. While these collections have yielded many species similar to those of shallow-water sediments, they have provided interesting and unique species as well. An example is the discovery by Dr. W. Duane Hope of new species of the family Mermithidae. Nematodes of this family are common parasites of insects and some fresh-water crustaceans in their immature stages but as adults they become inhabitants of soil or fresh-water sediment. There exist no previously well-documented reports of mermithids parasitic in marine crustaceans. Samples taken using the new technique have yielded four new species of abyssal mermithids inhabiting the sediment as nonparasitic adults. Their hosts remain unknown. What appears to be a fifth species, however, was found to be parasitic in an ostracod (a small crustacean). Apparently adult as well as juvenile ostracods may become infected. As the nematode reaches maturity it destroys the ostracod, not unlike the fate inflicted on infected insects. The young nematodes are provided with a minute, hollow stylet which they use to puncture host tissue. Presumably, enzymes are secreted through the stylet into the tissue and the stylet then used to ingest the liquified tissue. All that remains of the ostracod after the nematode has fully developed are the undissolved valves and appendages. Having destroyed their hosts, the fully developed male and female nematodes apparently enter the sediments where they subsist on their stored food reserves, until they mate, lay eggs, and die.

An interesting aspect of mermithids is that they are among the few nematodes whose sex may be influenced by external environmental factors, such as crowding. Mermithids numbering less than nine in grasshoppers, for example, are always females. Where nine or more adults occur in a single host, all are males. To date, all ostracods examined have no more than two nematodes and all are females.

An international conference on echinoderms was organized

by Dr. David L. Pawson and Miss Maureen E. Downey, and held at the Natural History Museum in September 1972. Approximately 100 echinoderm specialists from 15 countries attended, and 45 papers were presented during the 3-day conference. The conference was highly successful, and a resolution was passed to hold a second conference in Yugoslavia in 1975.

The Allende meteorite is assuming the importance of a major scientific event. During the past year it has been called both a "Rosetta Stone of the Solar System" and a "Solar Nebula Trashcan" by speakers at a national symposium devoted to the cosmochemical implications of this remarkable messenger from space. No other single meteorite has received anything like the scientific attention that has been focused on Allende. The multitude of observations and the ideas they have suggested give new insight into the earliest history of the solar system, a history that is not available to us from terrestrial or lunar rocks. The Allende meteorite is an accumulation of materials that formed under very different conditions, ranging from mineral associations that formed at unusually high temperatures to organic compounds that would not be expected to survive for long at temperatures much in excess of those needed to bake a cake. A new idea that is gaining considerable acceptance is that Allende accumulated in a region of the condensing solar nebula of surprising heterogeneity, perhaps a boundary region between materials that produced the inner planets and those which produced the outer, major planets.

The Smithsonian has been deeply involved in Allende research since the meteorite fell in northern Mexico on February 8, 1969. Dr. Brian H. Mason and Mr. Roy S. Clarke, Jr., of the Museum staff were in the field promptly, collecting considerable amounts of material that was widely distributed to interested scientists, beginning as early as 12 days after the fall. In the following months we supplied samples to 99 individual scientists in 79 different organizations in 18 countries. In the meantime the Museum staff prepared the basic comprehensive description of this largest known stony meteorite shower. In the Museum laboratories a comparative interlaboratory study of the chemistry of this rare type meteorite has been initiated. This is the first serious attempt at this type of study using meteoritic material.

Since the start of the Lunar Program the NMNH has made many important contributions to the understanding of the chemical and mineralogical make-up of lunar rocks. This past year saw the beginning of intensive studies of samples from the



The recent volcanic eruption on the island of Heimay (Iceland) began at 2:00 A.M. on 23 January 1973. The next morning a Museum scientist was on the scene to make observations and working with Icelandic scientists to collect specimens of the erupted material. By 23 March 1973, the house shown in this picture was covered completely by lava and ash.



Apollo 17 mission. Apollo 16 samples taken from the lunar highlands were found to be distinct from most samples of the other four lunar regions sampled and are markedly enriched in plagioclase, probably reflecting the original composition of the lunar crust, formed over four billion years ago. The Apollo 17 samples now under study include typical lava (basalt) samples of the Mare as well as highland-type samples, collected along the sides at the base of the mountains of the Taurus-Littrow landing site.

Early on the morning of January 23, 1973, after less than 2 days of mild earthquakes, a new volcanic fissure sprang to life on Haimay, a small but heavily populated island midway between Iceland and the volcanic island of Surtsey, which was "born" 10 years ago. A Museum scientist, Dr. Thomas E. Simkin, was on the scene almost immediately and began studies and observations on the second morning of the eruption. Samples of lava were collected during the next 4 days, during a time of rapid changes in its character. Back in the laboratory, these samples showed small but significant changes in the lava composition, changes which indicated that this would probably turn out to be a major, large-volume eruption. Volcanic action is still continuing at this important eruption; and scientists from Iceland together with members of our staff are at the site and much valuable data has already been recorded.

The determination of the chemical and mineralogical make-up of natural history objects, ranging from studies of lunar samples to chemical pollutants in organisms, is an important function of the Department of Mineral Sciences' newly expanded Physical Science Laboratory which is under the direction of Mr. Eugene Jarosewich. In addition to the ongoing program of providing data for research on the origin and composition of meteorites, minerals, and rocks, in 1973 the Laboratory participated in studies of the make-up and development of human bone, both in recent and fossil materials. Other recent studies contributed to understanding the composition of fossil and recent shelled organisms, including phosphorous and magnesium uptake during life and during fossilization. Inquiries were made into the suitability of museum specimens, especially fish, to establish pre-pollution levels of trace elements. Contamination of such specimens in their containers by labels and the preservation solutions were shown to be important sources of error in establishing baseline levels of certain elements, thus raising grave doubts as to the feasibility of using

such specimens for baseline studies for certain trace elements. This work is being pressed since the findings have great significance to current research in many institutions.

Smithsonian scientists are in the forefront of a "revolution" which is occurring in the underlying ideas and methods of the science of paleobiology that is nearly as profound as the one taking place in concepts of mobility of the earth's crust and the drifting of continents, although not so widely heralded. The trend for the past decade has been increasingly on direct observation of living counterparts of fossil organisms, to provide insights into the anatomy of the soft tissues and interpretations of the living habits and ecology of the fossils. These methods have paid off handsomely and several important discoveries were made in the past year.

Dr. Richard S. Boardman's work on the Bryozoa is illustrative of the advances which are being made. These tiny invertebrate animals form colonies made up of thousands of individual animals, much as corals do. They are important fouling organisms in the modern oceans and are abundant in ancient strata extending back more than 500 million years. New techniques of dissection of the living and fossil species for direct comparison under high magnification have revealed impressions of fleshy organs in the fossils that are analagous to those in the living descendants. Preservation of these incredibly fragile structures for more than 500 million years is most extraordinary and fortunate indeed. Prior to the insights gained by thorough study of the living forms, this had remained an uninterpretable mystery.

A similar breakthrough has been made this past year in studies of the group of shelly organisms known as Brachiopoda which, while only a minor constituent of the modern seas, were extremely abundant in the past and nearly a dominant organism in the Paleozoic Era. The study of living forms by Drs. G. Arthur Cooper and Richard E. Grant has resulted in reinterpretation of the muscle systems in Ordovician shells (500 million years ago) and feeding organs of Permian shells (250 million years ago). This new understanding will require revisions of statements that have appeared in the standard textbooks for as long as 100 years.

Studies of fossils are important to interpretation of physical events in the past. For example, the work of Dr. Richard H. Benson on tiny bivalved crustaceans has been helpful in interpreting an extremely complex series of events in the history



of the Mediterranean Sea, involving opening and closing of the Sea itself, the warming and cooling of its waters, the near drying of the entire Basin so that only warm saline lakes remained, and then renewed flooding in of ocean water from the Atlantic. These small organisms known as Ostracoda are abundant in modern lakes, rivers, seas, and oceans and are extremely sensitive to changes in temperature, depth of water, and salinity. Study of fossil ostracodes that are obtained in drill cores from the Mediterranean Sea floor, from surface outcrops in the high mountains some now more than a thousand miles from that Sea, and from salt and gypsum quarries that have been worked since Roman times have revealed the record of these drastic changes in the Mediterranean region during the past 15 million years.

Similar comparisons between the living and the fossil specimens made this past year by Dr. Leo J. Hickey have resulted in a new ordering in the history of the angiosperm plants. Botanists for years have been confused by the seeming resemblance of fossil leaves to those of living plants and were unable to make sense out of the evolutionary history of the angiosperms. New techniques in the study of venation of leaves and other aspects of leaf architecture, interpreted in light of the biologic functions of the various parts, now allows significant distinctions to be made. For the first time a workable taxonomy of leaves is possible, based on a reasonable phylogenetic interpretation. This promises to have wide effect upon the conceptual framework of all botany and to revolutionize ideas on the history of the development of terrestrial vegetation.

Some phases of paleobiological research are so new that "the book hasn't been written yet" and the scientist must conduct original research in the field in order to establish the fundamentals of his subject. Dr. Walter H. Adey, a Smithsonian paleobotanist who undertook the study of fossil representatives of the little-known marine plants called coralline algae, found that hardly anything was known of the living species in the existing oceans. He began what he thought would be a brief study of a minor constituent of the marine biota. Instead, he found that much of what had been called "coral reef" was in fact reef made primarily by coralline algae. This has led to on-the-spot underwater research on these algae almost continuously for the past 9 years, off the coasts of Norway, Spain, Eastern Canada, and Japan. This year a program in the Caribbean was initiated. Operating from a seagoing catamaran





Research vessel designed and constructed by members of the staff of the National Museum of Natural History. This "floating laboratory" is now in the Caribbean being used in studies of coralline algae.

that he built himself and equipped with a laboratory designed especially for the study of rock-secreting algae, the specimens are collected, prepared aboard the vessel, and the findings dispatched to various scientific journals for publication and circulation literally throughout the world.

The African Mammal Program, under the direction of Dr. Henry W. Setzer, has been involved for more than a decade in the collection of specimens from all parts of Africa for systematic and distributional studies. Field teams of foreign nationals have been trained in many countries to carry out such studies after the Smithsonian's work was completed. The program has cooperated with several microbiologically oriented organizations in assays of wild mammals and their ectoparasites for diseases, especially viral and rickettsial infections, that might be potentially transmissible to man.

Analyses of almost 8000 small mammal tissues were completed by the Ibadan Virus Laboratory at the University of Ibadan, Nigeria, and the results that were collated this year showed some 84 positive viral recoveries. Bat virus was recovered from specimens of free-tailed bats and Uganda S virus was obtained from rodents and shrews. Lassa Virus, responsible for the lethal Lassa Fever in humans, was isolated for the first time in a rodent, *Aethomys stannarius*.

In previous years studies of yellow fever in Senegal and monkey pox in Liberia were carried out in cooperation with the National Institutes of Health's Communicable Disease Center in Atlanta. An important discovery was that the primary reservoir of monkey fever is in arboreal and semiarboreal rodents, rather than in nonhuman primates.

A pioneering effort to provide baseline data on small mammals, their ectoparasites and viruses prior to construction of several large dams on the Orange River in South Africa was conducted by our field teams together with the South African Institute for Medical Research. Waters of the Orange River are to be diverted by means of a tunnel to another drainage basin, the Fish River, thus creating the potential for transferring aquatic insects that may be infected vectors of viruses. The South African government will use personnel trained during this project to continue monitoring ecological and faunal changes as the Orange River dams mature. The mammal and ectoparasite data from many parts of Africa are being computerized for ready recovery and association and will provide



similar baseline information for major development projects in other African countries.

The addition to our staff this year of Dr. James G. Mead, a marine mammalogist, has served as a stimulus to development and study of our collections of these important animals. Because study material is not available through routine collecting methods, a salvage program has been established by means of which animals that are stranded may be studied on the spot and valuable specimens recovered for laboratory investigations. Eventually, the Museum hopes to be able to respond to any report of a stranded marine mammal on the East Coast of the United States and to encourage knowledgeable scientists elsewhere to do the same. This year the East Coast program obtained biological data for, and preserved 19 specimens of 7 species of whales or porpoises and 3 specimens of 2 species of seals. One highlight was a stranded Blainville's Beaked Whale (*Mesoplodon densirostris*) which was maintained alive for 3 days. This was the first time this species has been seen alive by biologists, and a group of marine mammalogists from several institutions responded to the report in time to gather significant functional information. Future activities of the salvage program will be greatly enhanced by the donation from the Ford Motor Company of a specially equipped truck.

Photographs of whales and porpoises that had been scattered in several different files and storage areas were brought together this year in a central file that is now useful in curation, research, and as a source of additional information concerning specimens in the collection. Visiting investigators have used the new file extensively, notably for preparation by the Navy of a guidebook to Atlantic species.

On Saturday, June 2, 1973, a group of metropolitan Washington area children, carrying "Save Whales" balloons and posters, gathered under the 90-foot, life-size model of the blue whale in the National Museum of Natural History to demonstrate their concern that whales are in danger of becoming extinct because of the excesses of commercial fishing fleets.

The Smithsonian Institution is supporting a proposed moratorium on the killing of whales and other cetaceans, such as dolphins and porpoises, and for this reason the National Museum of Natural History, which has long been a center of cetacean research and a leader in working for their conservation, cooperated in the march. The march sponsor was "Project Jonah," a nonprofit international society which had organized





Children's march in connection with "Save Whales" program.

similar marches in cities throughout the world in advance of the June 1973 annual meeting of the International Whaling Commission. Dr. Porter M. Kier, Museum Director, and Dr. James G. Mead, NMNH authority on cetaceans, were present to greet the children and answer their questions about whales.

## National Air and Space Museum

For the National Air and Space Museum, 1973 was an important and productive year. Ground was broken for the new museum building in an impressive ceremony presided over by the Secretary of the Smithsonian Institution. The Chancellor of the Institution, The Honorable Warren E. Burger, delivered the groundbreaking address to an enthusiastic crowd of National Air and Space Museum friends.

When completed, the building will have a clean and crisp look which will create a harmonious balance between the sleek aerodynamic shapes within it and the classical elegance of its neighbor, the National Gallery of Art. The exterior of the building will be Tennessee marble of a pinkish hue, matching that of the National Gallery of Art, and grey glass designed to filter out harmful ultraviolet rays.

To achieve the ideal blend of subject matter in the Museum, the interior of the building and its contents require special planning, experimenting, refining, and changing. The National Air and Space Museum's charter is an extremely broad one, beginning with man's first aspirations to fly, spanning his first faltering ascents in hydrogen and hot air balloons, and then recording the surge of powered flight which followed the fateful day in 1903 at Kitty Hawk. From Kitty Hawk to the moon, the pace has been increasingly swift, the technology more and more sophisticated, the story ever more complex. No important segment of it can be slighted—not the contributions of a Goddard or a Lindbergh, nor the story of the aerospace industries and what they contribute to the quality of our lives. In addition, the Museum not only will display artifacts, but will act as a catalyst in exchanging information, and will become a true national center for aerospace historical research.

Opposing these grandiose concepts are the realities of space and budget. The fuselage of a Boeing 747 is longer than the building is wide; a Saturn V, if parked along side it, would loom four times as high. Clearly, an alternative must be found to





Secretary S. Dillon Ripley and The Honorable Warren E. Burger break ground on 20 November 1972 for the new National Air and Space Museum building, while Senator J. William Fulbright and Senator Jennings Randolph observe.

simply parking machines and putting velvet ropes around them. Modern technology must be translated into creative communications. The Museum must communicate in a wide variety of ways: by showing objects, by labels, by sound, by film, by

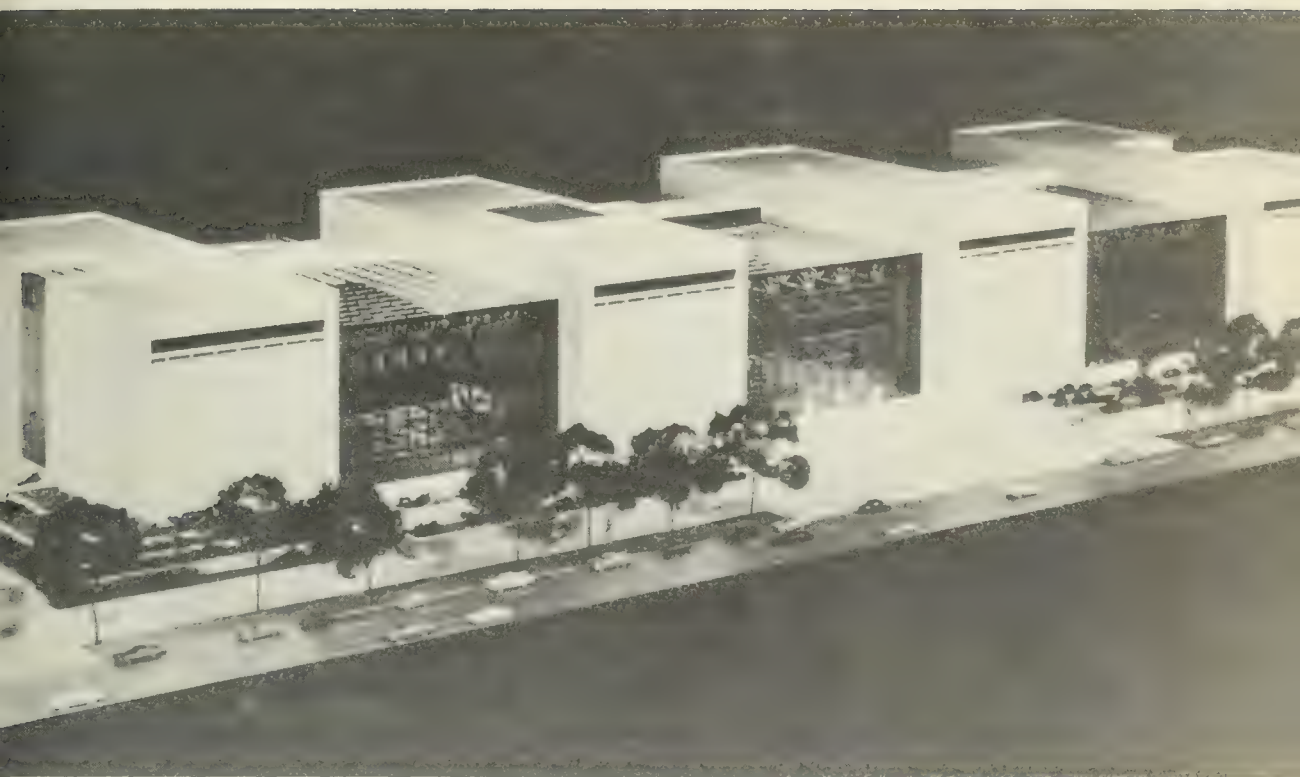




Michael Collins, Director of the National Air and Space Museum, and Chief Justice Warren E. Burger on the happy occasion of the groundbreaking ceremony for the new National Air and Space Museum building. At right, Meredith Johnson, Smithsonian Special Events Officer.

electromechanical and audiovisual devices of the highest fidelity and reliability. It is recognized that a technique well suited for one subject may be completely inappropriate for another. For example, the Hall on Ballooning will include a light, even frivolous treatment of some byproducts of the crazy era of ballooning, featuring balloon music, art, furniture—even a puppet show. On the other hand, the hall devoted to the Earthbound Benefits of Flight will be a thoughtful, carefully researched, highly documented treatment of the spinoffs resulting from air and space technology. In some areas, such as Early Rocketry, the collection may be far from complete, and substitutes for actual artifacts will be found. In some cases, however, the National Air and Space Museum has more machines than floor space for their display, and the process of winnowing and selecting will be accomplished with an eye toward displaying only those machines of the greatest historic significance.

In all, the National Air and Space Museum has 250 airplanes, and, of course, not all of them will fit into the new building at once. For this reason, exhibits will be rotated as funds allow,



Model of the new National Air and Space Museum.

and only a few of the very finest (such as the Wright Flyer) will be on permanent display. The National Air and Space Museum also has acquired a representative sampling of spacecraft, supporting hardware, documentation, and photographs. An art collection has been started, small at present, but one which will grow, for frequently the artist's eye has captured the flavor of an important event with incomparable power and precision. Also, from a practical standpoint, color photographs fade, but oils have been known to retain their original color for 500 years. In the new building, one hall will be devoted to air and space art; and in addition, paintings and three-dimensional art objects will be added wherever they enhance other exhibits.

The Museum will have 26 exhibit halls as well as 2 special-purpose chambers for education and entertainment. One will be an auditorium with a rather steeply slanted floor, seating 400 persons. The front of this room will accommodate a curved 55'  $\times$  75' screen, while the projection booth will be capable of handling the finest 70 mm projection equipment. With this potential for large-scale visual presentations of the highest possible fidelity, it will be possible to offer a dramatic substitute





View of the new National Air and Space Museum under construction. Work goes forward in anticipation of a 4 July 1976 opening.

for viewing three-dimensional objects. The auditorium will, of course, also be available for more conventional purposes, such as various lecture series which are now presented in borrowed auditoria.

The second special-purpose chamber, called the Spacearium, will most closely resemble a planetarium. An audience of 300 persons will be seated under a pierced aluminum dome 70 feet in diameter. Upon this dome, from the center of the room, can be projected the night sky, including accurate simulations of any part of the celestial sphere. Special-effects projectors also will be used, both inside and outside the dome, to assist in creating the illusion that the spectator has left the surface of the planet and has traveled out into space. In keeping with the Smithsonian's reputation for research and accuracy, every attempt will be made to explain recent discoveries in the fields of astronomy



and astrophysics, such as pulsars, quasars, and black holes. On a more frivolous, but entertaining level, the Spacearium can be used as a backdrop for a variety of nonscientific productions. A powerful teaching tool, it will be available to the District of Columbia and neighboring school systems as special school presentations are developed.

Another extremely valuable component of the new National Air and Space Museum will be the research library and information center. Unlike most other libraries, which have aerospace material diffused throughout their collections, the visitor will find concentrated in one spot a wealth of material relating to the history of flight. With over 20,000 bound volumes and 200 periodicals, the library is today the broadest and most accessible source of scholarly research in a variety of aerospace fields.

In 1973, a 30-foot, domed planetarium was opened in the Air and Space Building and daily shows are being given to the visiting public. In addition to serving as an entertainment and education tool, the planetarium will serve as a laboratory for the experimentation and design of equipment and programs to be used in the 70-foot, domed chamber of the new National Air and Space Museum Building.

The National Air and Space Museum, in conjunction with the Smithsonian Astrophysical Observatory, hosted a nine-lecture series called, "Man and Cosmos." During this series, some of the finest astronomers in the country provided (to standing-room-only crowds) a comprehensive and current survey of man's past and present concepts of the solar system, with particular emphasis on the results of space science research during the past decade. The lecture series is now being edited for publication by the Norton Publishing Company.

The Roscoe Turner Aviation Collection, which includes the aircraft, Turner Special, and the Thompson Trophy, was donated to the Museum. A large number of artifacts also were added to the astronautics collection, including several flown space suits and spacecraft-recovery parachutes. Fifteen works of art were acquired, including a large Aubusson tapestry, *Aerosonique*.

Restoration work is progressing on eight major artifacts: the Douglas World Cruiser, Douglas D558-2 Skyrocket, Messerschmidt ME-109, Curtiss XF9C-2, Spitfire MK VII, Piper L4B, the Curtiss VX engine, and the 1926 Goddard Rocket. The latter is the first of a series of astronautic artifacts being restored for an Apollo exhibit.

## Smithsonian Astrophysical Observatory

The past year at the Smithsonian Astrophysical Observatory (SAO) saw the attainment of several major milestones, as long-term research programs were brought to fruition and other promising investigations aimed at extending the frontiers of astronomy were begun. Although the Observatory has enjoyed a position at the forefront of astrophysical research, the potential for further contributions to man's better understanding of the physical universe are strengthened.

### SPACE OBSERVATIONS

The results from SAO's *Celescope* experiment aboard the Orbiting Astronomical Observatory (OAO-2) now appear in published form as the *Celescope Catalog of Ultraviolet Stellar Observations*. The catalogue is based on more than 8000 ultraviolet television pictures taken by special Uvicon cameras and represents observations of approximately 10 percent of the entire sky, including 20 percent of the region near the Milky Way, where the majority of ultraviolet stars are found. The final catalogue lists for each of 5068 stars, the magnitude, position, spectral type, and other information, including cross references to ground-based catalogues.

A companion volume, *Blanketed Model Atmospheres for Early-Type Stars*, representing an analysis of the *Celescope* data as applied to stellar theory, is in publication as well.

In collaboration with Harvard University and the University of Arizona, SAO flew two test flights of a 40-inch-aperture balloonborne telescope designed to obtain far-infrared (100 micron) data from altitudes high above the obscuring effect of the earth's atmosphere. The experiment is expected to give new insights into the structure and energetics of our own Milky Way Galaxy, the processes of birth of stars and planetary systems, and the structure of planetary atmospheres.

Using imagery of the African rift system provided by the Earth Resources Technology Satellite (ERTS), one scientist has detected new structural features that indicate a direct relation between the degree of obliquity in the pattern of recent faulting and the older and underlying Precambrian structures. These results could have important implications for mining interests throughout East Africa.

Work began on an experiment to test the equivalence principle—the cornerstone of Einstein's General Theory of Relativity—by employing a master clock in a rocket probe. This 3.5-hour experiment will use the stability of the hydrogen maser to measure the expected gravitational redshift to an accuracy of about 20 parts per million. The NASA-supported experiment employs a two-way doppler cancellation system that may be useful for further experiments of this type.

SAO staff members continued their deep involvement with observations from the Orbiting Solar Observatories during 1972, with one scientist reducing spectra of solar prominences and filaments obtained by the Harvard extreme ultraviolet (EUV) spectrometer aboard oso 4 and 6. He is also involved in the program of EUV solar observations conducted with the Harvard experiment on the Apollo Telescope Mount (ATM) aboard the Skylab satellite.

## EARTH PHYSICS

A new Earth Dynamics Program (EDP) combines many aspects of SAO's highly successful satellite-tracking and geophysical research programs in anticipation of NASA's proposed Earth and Ocean Physics Applications Program. The program's main objectives are the following: (1) To develop theoretical models and to improve understanding of the kinematics, internal structure, and mechanics of the earth, particularly through the mapping, with 1- to 2-cm accuracy, of polar motion, rotation, plate motion (continental drift), crustal motions in active regions such as fault zones and rifts, and core-mantle interactions; and (2) to use the results of this research in applications such as earthquake predictions.

SAO's own network of lasers and cameras produced data that, when combined with other satellite and VLBI data, formed the foundation for the complex calculations culminating in the *SAO Standard Earth III*. For these calculations, SAO greatly extended those computer programs treating lunar and solar perturbations, air drag, tidal effects, radiation pressure, and other effects to derive a highly significant model of the earth as a whole with respect to gravitational variations and geodetic positions and networks.

Satellite-tracking data were also used to produce models of the earth's atmosphere. The most important recent finding is a variation, as a function of solar activity, in the coefficients



relating to the 27-day variation on the atmosphere to those in decimetric solar flux.

## EXTRATERRESTRIAL MATERIALS

The Observatory continues its analyses of lunar samples and of meteors and meteorites. One group conducted petrographic surveys of samples returned by both the Apollo and the Soviet lunar missions, singling out for special study several materials, including types of rock found at considerable depth under the lunar terrae, a variety of green glass containing quenched crystallites of a type not yet identified among other lunar rock fragments, and a heretofore unrecognized iron-rich basalt that apparently forms in the final stages of crystallization of certain lunar magmas. A second group is making isotopic analyses of lunar samples to learn about recent and ancient solar flares. Solar flares occurring within months of the Apollo missions were determined from the 35-day  $\text{Ar}^{37}$  activity, and the values agree with satellite measures. Solar flares averaged over the past thousand years were determined from the 300-year  $\text{Ar}^{39}$  activity. A third group is studying the distribution of gases in lunar samples to gain an understanding of how, when, and why these constituents were implanted in the surface layers.

Statistical studies of fireball trajectories done in collaboration with the Ondrejov Observatory in Czechoslovakia and based on data obtained by SAO's Prairie Network led to better observational distinctions between ordinary stony meteorites and other types that seldom, if ever, survive atmospheric entry. These results have great relevance to evolutionary problems of the solar system.

Two scientists developed theories related to lunar evolution, the first attempting to explain the apparent asymmetry of the moon's surface, the other developing a model for explaining the extreme differences in the geochemical composition of the earth and moon.

## GROUND-BASED OBSERVATIONS

As part of a ground-based observation program conducted in support of spacecraft observations, one SAO group continued its acquisition and analysis of high-resolution spectra of absorption lines on Mars, Venus, Jupiter, Saturn, and Uranus, using a 60-

inch telescope and the three-etalon Fabry-Perot interferometer at Mount Hopkins. They detected for the first time the presence of HD molecules in the atmosphere of Jupiter. Aside from having intrinsic interest, this measurement provides useful information bearing on the evolution of the atmospheres of the planets.

Using the PEPSIOS high-resolution optical spectrometer, the same group observed interstellar lithium in the spectrum of Zeta Ophiuchi, a finding that has implications in support of the "big-bang" theory of the universe.

An SAO scientist has developed a low-cost and simple device for detecting muons and, by implication, neutrinos. Muons are extremely unstable secondary particles produced by both cosmic rays and neutrinos. According to theory, the number of muons produced by cosmic rays should decrease the deeper one goes into the earth. At a depth of some 2000 feet below sea level, the only muons detectable would be those produced by the neutrinos. The SAO muon detector, then, is a relatively small and portable device that so far has been carried to locations in Massachusetts railway tunnels and to a deep gold mine in India to establish baseline levels.

In confirmation of results obtained on Apollo 15, scientists again received radio signals from a lunar orbiting vehicle after it had been occulted by the moon. On 15 December 1972, at 01:43:23 GMT, the Apollo 17 lunar ship *America* was occulted by the moon; approximately 40 seconds later, its radio signal reappeared, about 20 decibels above noise, and persisted for about 42 seconds.

After having been lost since its first discovery 41 years ago, the minor planet Apollo—the prototype for those crossing the earth's orbit—has been rediscovered by SAO astronomers. The asteroid was recovered on photographic plates taken 28 March with a 61-inch reflector at Harvard's Agassiz Station.

Joint Smithsonian Astrophysical Observatory-Harvard efforts in radio astronomy continued to produce new observations of interstellar molecules, including silicon monoxide (SiO) and cyanoacetylene (HC<sub>3</sub>N). One group, using the 36-foot radio telescope at Kitt Peak National Observatory, successfully identified sulfur monoxide (SO). Another group determined the correlation between long-period variables and the radial velocity patterns of the hydroxyl (OH) molecule. Related efforts by this group to observe quasars and to study the interstellar medium in the millimeter-wave regions of the spectrum continued with

the cooperation of Bell Laboratories and the use of facilities at the University of Texas.

At Mount Hopkins, construction of a road to the summit area was completed in preparation for the installation of the large Multiple-Mirror Telescope (MMT) being built by SAO and the University of Arizona for optical and infrared studies. The design and early construction of this unique telescope are progressing rapidly and smoothly.

## PUBLIC SERVICE

In cooperation with the National Air and Space Museum, SAO sponsored a 9-week series of free lectures on astronomy in Washington, D.C. The highly successful series, entitled "Man and Cosmos," will be published as a book by W. W. Norton.

SAO hosted a 5-day symposium on "cosmochemistry" to discuss topics such as the composition of the sun, meteorites, and cosmic rays; the solar wind; the moon and planets; and the interstellar medium; and the significance of these factors in terms of origin and evolution.

A number of SAO scientists and administrators played major roles in preparation for the Polish and American celebrations honoring the 500th anniversary of Nicholas Copernicus' birth.

A combined group of SAO and Harvard scientists was selected to direct the instrument definition team for the low-dispersion (faint object) spectrograph on the Large Space Telescope (LST). Other SAO scientists were asked to serve on the planning panel for space missions to Jupiter and Saturn in 1976.

## PERSONNEL

Dr. Fred L. Whipple, Director of SAO since 1956, announced his retirement effective 1 July 1973. Dr. George Field, a physicist and member of the Harvard College Observatory staff, was named to succeed him.

Mr. Robert V. Bartnik, Assistant Director for Administration, resigned, and Mr. John G. Gregory, formerly head of SAO's Systems Management Department, was named to succeed him.

Dr. Charles A. Lundquist, Assistant Director for Science, resigned to take a position as Director of the Space Sciences Laboratory, NASA-Marshall Space Flight Center.

Drs. John Wood and Luigi Jacchia both received NASA's



Exceptional Scientific Achievement Medals: Wood for his contributions to the Apollo program, and Jacchia for his "unique discoveries of the exosphere and the interactions of solar terrestrial interactions."

## Smithsonian Tropical Research Institute

This year marked the fiftieth anniversary of the Smithsonian Tropical Research Institute (STRI). It was on 17 April 1923 that Governor Dwight Morrow issued the order setting aside Barro Colorado Island as a nature preserve, the first step in the development of the Institute which has now become active in research and education as well as in conservation.

For the last decade, the research of the staff has been primarily concerned with the behavior and ecology of the organisms of two important series of tropical habitats: humid forest (and related scrub and second growth), and inshore marine environments, including coral and other reefs. Work in these areas has continued in 1973. At the same time, STRI has begun on a small scale, several new programs in other fields, and it is hoped that these programs will evolve and become additional major foci of interest.

One of the new programs is concerned with human ecology and paleoecology. Man himself is a species of tropical origin. The human populations of the tropics have developed a wide range of adaptations to their surroundings. The analysis of these adaptations may have considerable scientific and intellectual value; it is also of practical significance now, with the accelerating changes of the so-called developing world. STRI has a further special interest in the subject. It is becoming evident that tropical habitats have been continuously modified by man for many thousands of years (even in the New World), long before the current population explosion. It must be assumed that the distribution and behavior of most of the other organisms that we are studying have been profoundly affected, directly or indirectly, as a result of human intervention. The present situation can be understood only by placing it in historical perspective.

One of the postdoctoral fellows, Dr. Anthony Ranere, has been investigating preceramic sites in Panamá in order to determine the settlement patterns, migration routes, and technological apparatus of the earliest human inhabitants of the

area. An associate of the U.S. National Museum of Natural History, Dr. Olga Linares, is conducting research on some of the later Indian cultures, especially in the west of Panamá, in the provinces of Chiriquí and Bocas del Toro. This work is providing new information on ecological changes correlated with variations in human subsistence patterns and methods of exploiting the environment. Some of the changes are proving to be surprisingly large. Both Dr. Linares and Dr. Ranere, and some of their collaborators have also prospected sites for future paleoecological, archeological, and anthropological research in Colombia.

Another relatively new program, devoted to the analysis of tropical grasslands, is being carried out jointly with the Institute of Ecology of the Polish Academy of Sciences. Two Polish scientists, Dr. Lucyna Andrzejewska and Dr. Andrzej Myrcha, have begun to study the roles and effects of small animals, arthropods and certain vertebrates, in several different kinds of grasslands in central Panamá. This and subsequent studies should bring our knowledge of savannah and related habitats, both natural and artificial, up to the level of our understanding of the forest ecosystems.

Comparative studies of different regions of the tropics are continuing as planned. An associate of STRI and previous postdoctoral fellow, Mme. Annette Hladik, has been compiling the results of her botanical studies in Gabon. Dr. Peter Glynn is visiting Indonesia to investigate possibilities for marine research there. Dr. and Mrs. Michael Robinson are returning to New Guinea to resume their studies of orthopteroid insects and spiders. Dr. Stanley Rand continued his studies of lizard communication with two visits to different parts of the Lesser Antilles. During the past year, however, special attention has been paid to the fostering of research in northern South America, most notably in Colombia. The Cali station is being used by increasing numbers of visiting scientists and students as well as staff. (Remarkably, it is also producing a small financial profit. This enables us to give small grants-in-aid to support specific research projects of modest scope in Colombia.) Dr. Neal Smith traveled widely in Surinam and Venezuela pursuing his interests in nest and brood parasitism in birds.

With the general expansion of STRI activities, it has been decided to seek closer and more regular connections with the Panamanian and Colombian governments, to supplement our existing arrangements with local universities, museums, and



Coring of the coral reef at Galeta Island,  
Atlantic Coast of Panama.





other scientific organizations. Agreements with both governments have been drawn up and are expected to be signed shortly. A new, additional, office is being prepared in Panama City to facilitate contacts and cooperation with STRI's Panamanian colleagues.

Research on coral continues to be an important focus of many of our marine scientists. A drilling program was initiated on the Galeta reef flat to determine the thickness and age of this much-studied reef. With cores across only half of the reef, Drs. MacIntyre and Glynn have determined that the corals are at least 50 feet thick and are resting on a base of mudstone of the miocene Gatun formation. All the species in the cores represent modern classes of corals. They plan to continue the drilling toward the reef crest where 60- to 70-foot depths are expected. P. Glynn has also described a form of mobile spherical corals. He believes that planula larvae settle on algae modules which are continuously tumbled by the feeding action of certain fishes. A nearly uniform radial growth results from periodic movements, preventing prolonged growth on any particular axis.

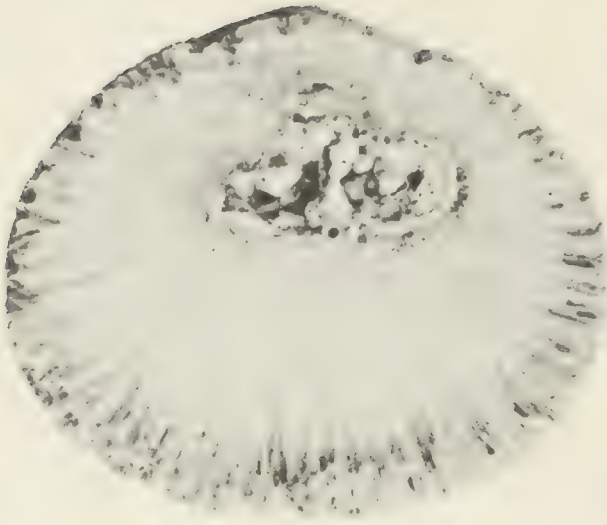
Dr. Moynihan has continued studies of the behavior and ecology of squids, especially *Sepioteuthis sepioidea*. Cephalopods are interesting because they are molluscs but convergent to



Spherical growth form of *Pavona gigantea*.

Shown at left, *Sepioteuthis sepioidea*, squid behavior is under study at the Islas San Blas on the Atlantic side of Panama.





Cross section of spherical form of *Pavona clibosa* showing the algae growth nucleus.

vertebrates. They have become large and predatory, developed large brains, good eyes, etc., but their social behavior has been very little studied (essentially not at all in the field). *S. sepioidea*, at least, turns out to have a complex social structure, elaborate and flexible organization of size (age), and sex classes. It has evolved a complex visual signaling system.

The Environmental Science Program continued to develop and to implement monitoring techniques and procedures for both physical and biological fluctuations. Work was largely done in the forest on Barro Colorado Island and on the coral reef flat at Galeta. With the completion of 1973, data are beginning to be accumulated to permit the comparison of successive years both in terms of meteorological differences and in terms of the responses of both animals and plants. It is already clear that even in the tropics the "typical year" is a rare event.

With the joint sponsorship of the Office of Academic Studies, STRI brought together five people from the United States and the West Indies to discuss current studies of the display behavior of Anoline lizards in a 4-day workshop on Barro Colorado Island.

STRI was fortunate in obtaining five excellent postdoctoral fellows during fiscal year 1973. In addition to their research, several of these fellows and the STRI staff taught formal courses at the University of Panama and in the Canal Zone Branch of Florida State University. These courses included "Analysis of Archaeological Materials" for advanced training of local archeologists, "Marine Biology," "Basic Biology," and an advanced botany seminar.

Use of STRI Facilities by visitors increased again after several years of leveling off. STRI was host to 669 visitors representing





Canopy catwalk under construction on Barro Colorado Island.

more than 60 universities and over 50 other organizations, among these were marine biologists from the University of Panama who are using STRI's laboratory space at Naos Island as well as the STRI research vessels.

During the past year major changes were made in STRI's facilities in Panamá. An ideal site was obtained in Balboa convenient to Panama City. The site includes a concrete structure of 4680 square feet which was formerly part of the facilities of the now-demolished Tivoli Guest House. Adjacent to this building, which needs extensive renovation, are about 6 acres of land; ample space for future construction of offices and laboratories, as well as cages and plant houses.

This year STRI also obtained three peninsulas in Gatun Lake opposite Barro Colorado Island. These areas, totaling 2480 acres, will enable certain sorts of destructive sampling and experimentation to be conducted which are not compatible with the policy of strict conservation on Barro Colorado Island. Parts of these areas are young second growth, a habitat lacking on Barro Colorado Island.

The central library, one of the most complete in the world in the field of tropical biology, was remodeled.

On Barro Colorado Island, gradual replacement of the original frame structures, most now badly infested with dry rot and termites, was continued. Kodak House was completed and Chapman House is in process of reconstruction. Plans were drawn up to replace the boathouse. A 45-foot launch was obtained surplus from the Panama Canal Company and after major restoration it is now carrying passengers and materials to and from the Island.

During 1973 STRI's research vessel situation changed completely. The Institute received from the Navy a 65-foot surplus T-boat, which was named the *Dos Mares*. Conversion work is being done at STRI with the help of the University of Panama. The 65-foot *Tethys*, twice before declared surplus by other agencies, was finally retired after 18,000 miles and 72 cruises for 66 different scientists in STRI's service. STRI was fortunate in obtaining as replacement a 42-foot boat that had been confiscated for drug running by the United States Coast Guard. The craft was renamed *Stenella*, and its duties will be redefined as well.

## Radiation Biology Laboratory

### CARBON DATING

The measurement of time and the chronology of events has always fascinated man, and the natural production of radioactive  $^{14}\text{C}$  in the atmosphere by cosmic rays provides a means of dating those events.  $^{14}\text{C}$ , as  $^{14}\text{CO}_2$ , enters the carbon cycle through photosynthesis and respiration, and all living organisms are then in equilibrium with the environmental reservoir, since the decay rate approximately equals the atmospheric production rate. On death of the organism, its  $^{14}\text{C}$  content decays with a half-life of nearly 5600 years. Therefore, the measurement of



present  $^{14}\text{C}$  content of the sample permits calculation of the time elapsed since the death of the organism over a span of about 40,000 years.

The Carbon Dating Laboratory has dated about 400 samples this year of interest to a wide variety of professionals, including anthropologists, sedimentologists, paleontologists, and marine biologists. For example, the chronology of development of the Chesapeake Bay is now being constructed. Marine flooding of the Bay basin began about 10,000 years ago, and careful sampling and dating of marine and freshwater peats and sediments will provide a chronology of this flooding. In addition to being of sedimentological and marine geological interest, the chronology will provide archeologists with a measure of the reduction of habitable land available to early occupants.

## ENVIRONMENTAL BIOLOGY

Flowering plants have evolved in such a way that those with a time measuring system have had an advantage for survival. The Radiation Biology Laboratory for a number of years has been studying such time measuring processes. For example, three representative species (Wintex barley, a long day plant; Biloxi soybean, a short day plant; and Black Valentine, a day neutral plant) have been found to utilize sunlight between 400 and 700 nm for photosynthesis with equal effectiveness. There is no difference in the total dry weight produced in these three species, even though grown in a greenhouse under natural daylight or in growth rooms under artificial lighting conditions.

Differences, however, do occur in the manner in which the dry weight is distributed morphologically. Wintex barley responded to changes in the red/far-red spectral regions by changes in elongation. In Black Valentine an increase in stem length is dependent upon increased levels of far-red; without far-red the plant stems are considerably shortened over controls grown in the greenhouse.

Measurements of the ratios of total global irradiance at several locations (Barrow, Alaska; Rockville, Maryland; and Jerusalem, Israel) were continued. Sharp transitions in the ratio of green to red ( $\frac{500-600}{600-700}$  nm) occurred in April at all three stations. Similarly, the ratio blue to red ( $\frac{400-500}{600-900}$  nm) reached a



maximum in the summertime around July and a minimum in winter. These ratio values are now being correlated with growth measurements of biological material grown at the same time. In addition, a new station has been constructed and is operating in the tropics at Flamenco Island, in the Canal Zone.

Similarly, a prototype scanning radiometer for detailed measurements in the ultraviolet has been completed. This instrument has a maximum sensitivity at the 290 nm band of 1 mV equal to  $4 \times 10^{-8} \text{ W cm}^{-2} \text{ nm}^{-1}$ . Fluctuations in the solar ultraviolet energy are of great interest as man continues to affect the transmission properties of the atmosphere by his activities.

## REGULATORY BIOLOGY

As microorganisms evolved, it is believed that one of the protective mechanisms that evolved against intense or toxic levels of sunlight was the formation of yellow pigments, carotenoids. A detailed action spectrum for the formation of these pigments by the fungus *Neurospora crassa* has been completed in the ultraviolet and visible spectral regions. Radiant energy at 280, 450, and 480 nm is most effective in inducing the biosynthesis of carotenoids. The action spectrum indicates that a carotenoid may itself be the photoreceptor for this induction and suggests that the low levels of the pigment present in dark grown cultures respond to sunlight signals for subsequent protection from harmful levels of sunlight.

## National Zoological Park

Fiscal year 1973 has been exceedingly active and stimulating at the National Zoological Park. Public interest in the giant pandas, presented to the people of the United States by the people of The People's Republic of China, continued to be intense. The lines of persons waiting to see Hsing-Hsing and Ling-Ling were long, particularly on fair-weather Sundays and holidays. The increased attendance at the Zoo brought about by these two marvelous animals naturally has caused some problems in parking and visitor trash, but the animals have brought great happiness and pleasure to the millions of visitors who have paid their respects to our Chinese guests.

Scientific studies of the behavioral growth and development of the animals have continued. Both animals have more than

doubled body weight and are developing into young adults. In the latter part of May, Ling-Ling came into estrus at an estimated 30 months of age. This is the earliest age reported of estrus occurring. The two animals were placed together although it was recognized that Hsing-Hsing, who it is estimated is 5 months younger and 15 pounds lighter, was probably immature. The animals got on well, without serious fighting, and with the expected semiserious mating play. Breeding did not occur, but there is optimism concerning the next breeding season, which may be next autumn or spring.

Many citizens in the Washington area have volunteered the bamboo patches from their gardens so that, even though the bamboo is being consumed at the rate of over 24 pounds a day, the Zoo's supply is not in danger of being overly utilized. Also, additional bamboo has been planted.

On 29 May 1972, Femelle, the 12-year-old female gorilla, gave birth to her first offspring, a male, who was named Mgeni Mopaya. Despite hopes that she would raise the baby herself, Femelle showed little interest; so, the baby was taken to the home of Headkeeper Bernard Gallagher, where his wife Louise raised it for 7 months. Mgeni Mopaya has been sent to the New York Zoo to keep company with a young female gorilla of approximately the same age. Femelle is pregnant once again.

Orangutan Jennie gave birth to female Nancy on 2 March 1973. Jennie had great affection and concern for her baby but, unfortunately, no milk. So, the little female had to be removed; it was placed on loan with the Kansas City Zoo, where it is being raised with a young male orangutan born about the same time.

Well over a year ago, the population of the eagle cage was reduced to a trio of American bald eagles. Early this spring it became evident that a pair was bonding and that the third bird was an unwanted member of a marital triangle; so, it was removed. The two remaining birds built their nest and an egg was laid, which successfully hatched during the latter part of May. It is rare to have a bald eagle hatch under captive conditions, although at the time of this writing, the Miami Zoo has also hatched a bald eagle chick. Both little chicks are growing nicely.

The lesser pandas, sometimes referred to as the little red pandas, gave birth to two kits on 23 June 1972, during hurricane Agnes. The animals were raised successfully by their mother and provide an interesting show for our visitors.

As reported in previous years, the white tigers have been





*Top left:* Moving day for the Komodo monitor lizard. He emerges out of the transfer crate onto woven mesh. *Top right:* The lizard is then wrapped up in the mesh. *Bottom left:* Dr. Bush and helpers trim the lizard's claws. *Bottom right:* The keepers and crate leave the yard and the Komodo lizard investigates his summer quarters.

successfully breeding. The last two litters, however, have shown signs of genetic weakness. It has become obvious that five generations of direct inline breeding has weakened the strain. Therefore, the loan of a male Bengal tiger, named Poona, was secured from the Brookfield Zoo. Under the guidance of Dr. D. G. Kleiman and the staff, he successfully bred with Kesari, the 7 year-old, yellow daughter of Mohini, and six cubs were delivered on 30 April 1973. After two days, the mother picked up the last born, which was the smallest, and carried him to the door of her cage, thus signifying that she was abandoning this cub to the care of humans. Keeper Art Cooper took this little foundling into his home and heart, and has raised him. Kesari



has performed the remarkable achievement of successfully raising her first litter of the remaining five cubs. This coming summer they will be a glorious show.

The majestic and awe-inspiring Indian rhinos, which have thrilled visitors with their massive appearance for the past 10 years, decided that this was the year that they should set up housekeeping. Rajkumari came into season in August. Because of the danger of injury during the pre-mating "play," a 24-hour watch was kept on these animals with the assistance of the Friends of the National Zoo (FONZ) under the guidance of Dr. Helmut Buechner of the staff. After some rather earth-shaking pre-mating roughhouse play, breeding was accomplished. Next December or January Rajkumari should deliver, if conception took place.

The golden lion marmoset project continues well. From 15–17 February 1972 a conference, sponsored jointly by the National Zoological Park and Wild Animal Propagation Trust, convened at the Zoo and those scientists in this country and Brazil who are most knowledgeable and concerned about this animal attended. All known facets of breeding and behavior of the golden lion marmoset were reviewed and discussed. From this, a cooperative breeding program was established. The National Zoological Park was designated one of the breeding centers for this beautiful, delicate, rare, South American primate. A building has been erected adjacent to the hospital-research building, which is now occupied by marmosets. We hope that all of their psychological and physiological needs have been met and that they will, within the next several years, reproduce in sufficient quantities to supply American zoos and return to the recently established parks and reserves in Brazil. The National Zoo now exhibits 15 of these animals, 2 of which are on breeding loan from other zoos. Also, 1 is on loan to another zoo. Of these animals, 11 were born here at the National Zoological Park.

In keeping with the Zoo's program and objectives of breeding rare and endangered animals for possible eventual return to their native habitats, two Zoo-born scimitar-horned oryx were donated to the Hai Bar Reserve in Israel. This species has been extinct in that area for many centuries. The Israeli Government is now establishing a program to reintroduce these and other animals to their former habitats. It is most gratifying to participate in the return of these beautiful animals to their former range.

The study of sloth ecology and behavior in Panama continued this year by Dr. G. G. Montgomery, with much valuable information being gained relative to the ecosystem of the tropical rain forest. Within the next few months, the technical papers resulting from this study will be published.

The veterinary staff of the National Zoological Park has developed techniques and skill to permit difficult, complicated, and esoteric surgical procedures, two examples of which follow.

The Zoo's young West African bongo, L'Ehania, was unable to deliver her calf because of adhesions which, for some unknown reason, had developed between the wall of the abdomen and uterus. These adhesions prevented her from having normal labor. This fact was unknown until a Caesarean section was performed after she had passed her normal gestation period. Unfortunately, the calf was not alive. However, the female survived the surgery and is doing well.

The 15-year-old, male African forest elephant had developed an infection at the base of his right tusk as a result of an injury inflicted by the older and larger female elephant, Nancy. The female had also bitten his tail, which resulted in severe necrosis. Dzimbo was operated on for what can be best described as a "root canal" on the tusk to curette and drain the tusk cavity, and to amputate 6 inches of his tail. So far, the tusk seems to be coming along fine.

The Master Plan for the complete renovation and modernization of the National Zoological Park has been completed and approved by all necessary reviewing bodies. Plans are now going forward on a new lion and tiger exhibit and the complete renovation of the 1904 monkey house.

In April of this year a one-dollar parking fee was established. FONZ are operating this program for us. Twenty-five percent of the profits from this operation will be used by FONZ for their educational programs at the Zoo, and the remaining 75 percent will be held in escrow by the Smithsonian Institution to partially defray the cost of a new parking facility to be constructed in conjunction with the Master Plan.

In summary, it can be said that the fiscal year of 1973, which started with the disastrous flood caused by hurricane Agnes (7 feet of water in the shop building) and has ended with our first hatching of an American bald eagle chick, has been exciting, stimulating, and portends well for the future years of the National Zoological Park.

## Office of Environmental Sciences

The Institution-wide conference on priorities in February recommended that new ways be found to demonstrate the value of the Smithsonian's basic and traditional interests in the environment. One such program initiated during the year was a series of ecological assessment studies in Southeast Asia. Of concern is the optimal future use of land and water resources in this region for the most rapid and enormous change of a tropical ecosystem in recorded history is taking place in Southeast Asia. A program of environmental assessment is necessary to better understand the impact of these changes upon the postwar reconstruction and development of the countries involved. Studies are continuing on offshore oil pollution in Indonesia, and the control of schistosomiasis in the Mekong River Basin, and new research is projected on the environmental impact of man-made lakes in Laos and aquatic weeds in freshwater impoundments throughout the region.

The Office of Environmental Sciences assists other Smithsonian bureaus and centers to carry on strategic and contemporary research on environmental problems, making extensive use of the national reference collections as an ecological data bank. The Institution's tradition of scientific research in the distribution and evolution of organisms is being applied in ecological studies required by federal and private agencies to comply with new legislation.

Staff members serve on a wide range of national and international advisory committees and work with Smithsonian scientists involved in biological monitoring and biological control, identification and conservation of natural areas, research on marine and freshwater pollution, appraisals of research on environmental problems, and studies of rare and endangered species of plants and animals.

### ECOLOGY PROGRAM

The Smithsonian Center for Natural Areas provides ecological competence in planning and setting priorities for selection and preservation of ecologically significant areas. Natural areas include habitats of rare and endangered animals, plants, and communities; sites of unique research interests, important breeding and over-wintering areas; archeological, paleontologi-



cal, and other locations which should be preserved. A quantitative evaluation system of ecological indicators has been developed as a scientifically sound basis for selection of sites in priority order for acquisition by procuring agencies to be set aside as permanent reserves.

A 2-year, exhaustive natural areas study has been made of the Chesapeake Bay region. All presently preserved land was identified, and ecologically significant plants, animals, and communities were plotted on a series of maps. Natural areas were rank ordered in terms of scientific criteria for recommended procurement and designated as protected areas.

A comprehensive conservation plan has been developed for the Coast of Maine involving more than 200,000 acres and 1100 miles of coastline, with support from the New England Regional Commission and the Maine Coastal Foundation.

The Center for Natural Areas, in cooperation with the Nature Conservancy, is developing a natural area registry. A current inventory of approximately 15,000 natural areas in the United States is being compiled and programmed for computer retrieval. Special emphasis is placed on endangered flora, fauna, and ecosystems. The Center also is assessing environmental inventory activities throughout the United States for the Army Corps of Engineers. A comparative review is being conducted of alternative methodologies employed in making environmental inventories.

The Center is helping evaluate the ecological impact of activities at U.S. Air Force Bases in the continental United States in order to promote a basis to recommend improvements in the conservation practices. A model is being constructed for the Air Force to use in subsequent surveys.

The Smithsonian Peace Corps Environmental Program continues to provide assistance in two general areas: (1) development of Peace Corps projects and volunteer assignments in developing countries in the environmental and natural resource fields, and (2) recruitment and placement of applicants skilled in the environmental and biological sciences.

To date over 1000 applications have been received and of these 480 volunteers with environmental skills have been assigned to 34 countries. The program staff is in contact with 258 international and host-country scientific or conservation organizations. Program development assistance will continue to be emphasized in less advanced countries and through interna-

tional organizations (IUCN, FAO, UNESCO, etc.) that cooperate in placement of volunteers in environmental positions.

The first national list of rare and endangered higher plants of the United States is being compiled by the Ecology Program and the Botany Department of the U. S. National Museum of Natural History with assistance from the Department of Agriculture and other organizations. The list includes plant species of the continental United States as well as Hawaii and Alaska.

## OCEANOGRAPHY AND LIMNOLOGY PROGRAM

During the past 10 years the Smithsonian's 2 oceanographic sorting centers have processed and distributed for scientific study over 50 million specimens of marine organisms. This achievement has resulted in recognition of the Centers as leading institutions in the taxonomic sorting, community analysis, and specimen and sample data management of marine plants and animals.

The Oceanographic Sorting Center at the Navy Yard in Washington processed nearly 9 million specimens in fiscal year 1973, distributing roughly 10 percent of the collections to scientists in the United States and abroad for taxonomic, distribution, and population studies. The Center also assisted a number of national and international agencies in environmental analysis programs, particularly the National Science Foundation's Antarctic Research Program (USARP) and the Marine Resource Monitoring and Assessment Program (MARMAP) of the National Marine Fisheries Service.

The Mediterranean Marine Sorting Center (MMS) in Tunisia continued to participate in the UNESCO-FAO-sponsored Cooperative Investigations of the Mediterranean and made available 2.5 million marine organisms to scientists, who depend upon these research services. The MMS also organized in cooperation with the United Nations Food and Agriculture Organization an international workshop on the Identification of Fish Eggs and Larvae of the Mediterranean. The purpose of this meeting was to pull together and up-date all available information on this increasingly significant subject area, compare criteria for identification, and develop illustrative materials for identification purposes.

A report was completed and published on the "Existing Conditions of the Biota of the Chesapeake Bay" for the Army Corps of Engineers. It will be used to develop a broad-based

program on environmental management for this important national estuarine system. The first nine volumes in a series of identification manuals, *The Biota of Freshwater Ecosystems of the United States*, were published this fiscal year under a contract from the Environmental Protection Agency. Two additional manuals were completed in manuscript and others are planned. The biota selected for inclusion in this series are considered to be water quality indicative organisms. Information on their biology and ecology is included with the keys to enhance the value of the manuals in environmental studies.

A preliminary study was completed on the levels of chlorinated hydrocarbons and heavy metals in the Caspian coastal zone of Iran, where chemical contaminants appear to be contributing to the decline of sturgeon and other commercial fishes. Studies of Skadar Lake, the largest of the Balkan Lakes, were continued in cooperation with the Institute for Biological Research at Belgrade, Yugoslavia. The objectives of this 5-year project are to describe the physical, chemical, biological, and geological nature of this lake, to develop a capability for management of the lake and its drainage basin as the regional impact of man increases.

#### CENTER FOR SHORT-LIVED PHENOMENA

The Center operates the global environmental alert system for rapid communication of scientific information on natural phenomena of short duration. During the year, the Center reported 142 short-lived events that occurred in 52 countries, an increase of 43 percent over the number of significant happenings described in the preceding year. The reporting network now consists of 2784 scientists, scientific institutions, and field stations located in 144 countries and covering every continent and ocean of the earth.

Scientific teams investigated nearly 90 percent (126) of the events. Events included 57 in the earth sciences, 77 of biological interest, and 8 astrophysical phenomena. They included significant modifications in biological and ecological systems, rare or unusual animal migrations, population explosions, major mortalities of plants and animals, volcanic eruptions, birth of new islands, earthquakes, landslides, cyclonic storm surges, floods, major fireball events and meteorite falls, and environmental pollution of significant proportion and short duration, such as



major oil spills, wide ranging smoke, and herbicide contaminations.

During fiscal year 1973, the Center formed a new National Environmental Alert Network which mobilized more than 40,000 high school and university students in over 700 schools and colleges as part of an International Environmental Alert Program. The program will become part of the United Nations Earthwatch Program, an international environmental monitoring activity that will be administered by the United Nations Environmental Program.

Contracts and grants were awarded by other organizations to facilitate participation of the Center in support of their programs. These included the Earth Resources Technology Satellite program and the Skylab Manned Orbital Workshop Program of NASA, and the United Nations Natural Disaster Program. For example, the Center alerted Skylab astronauts on short duration natural events in progress that could be described from orbit. It also asked its worldwide network of correspondents to identify events observed from orbit but not fully understood by the rapidly moving astronaut team.

The Center prepared publications on environmental monitoring and science information communications under contract to the United Nations Environmental Secretariat and the United Nations Office of Science and Technology.

## Chesapeake Bay Center for Environmental Studies

The Center has become the focal point of a model watershed program for the Rhode River, a sub-estuary of the Chesapeake Bay, along which the Center has 14 miles of shoreline and controls 2500 acres of land. This research is being conducted as a part of the program of the Chesapeake Research Consortium, an organization comprised of the Smithsonian Institution, the Johns Hopkins University, the University of Maryland, and the Virginia Institute of Marine Sciences, and is funded by the National Science Foundation. This funding was renewed in April 1973 to continue through September 1974.

The Center's programs involve integration of intensive ecosystem research with land use planning and the development of public participation in environmental decision-making processes.

This integration is being realized in part through development of a public information/education program utilizing data from scientific research. The information-transfer program, funded by the Noble Foundation, is intended to: (1) create a widespread understanding of the functioning dynamics of a regional ecosystem; (2) identify crucial problems affecting such a system; and (3) develop linkages between scientists, planners, and managers and the general public whereby solutions to these problems can be identified and implemented. An education center for workshops and seminars has been designed to carry out this public information/education program and will be constructed in the fall of 1973.

The potential of the Center for education in the environmental sciences has begun to be realized with the initiation of several new programs. A pilot environmental education program, designed to introduce concepts of ecology in urban and natural settings to inner city and suburban tenth graders, was conducted in May of 1972 in cooperation with Camp Letts, a YMCA facility adjoining the Center. The Department of Health, Education, and Welfare will provide funding for this program, beginning in June of 1973 for 12 months. In the spring of 1973, another educational program was begun that utilized the Center as a research site by high schools. Under this program, students and teachers have been afforded an opportunity to design and carry out research projects in consultation with the Center's staff. This program provides students with the unusual opportunity of working with practicing scientists and of utilizing the background of information on environmental variables that are available in the Center's data bank. An experimental educational program in ecology, intended to emphasize affective skills and focusing on interesting children in ecological relationships, was also begun in 1973. Finally, the Center continued its ongoing program of providing summer research opportunities for undergraduate students, and cooperating with local elementary schools in environmental education field studies. In the latter program, trips to the Center are arranged to illustrate various aspects of the curriculum under study in the classroom.

## Center for the Study of Man

The program initiated at the Cairo Conference last year has grown according to expectation. Monographs are being pre-

pared by 20 authors and 6 behavioral scientists are submitting questions to them. Two monographs are completed and will be submitted for publication. A direct outgrowth of this program has been the organization of five fully funded conferences for the forthcoming IXth International Congress of Anthropology and Ethnological Sciences in Chicago from August 28 to September 9. The pre-Congress conferences focus on the cross-cultural uses of cannibals, of alcohol, on American Indian economic development, on a general theory of cultural transmission, and on the relationship between anthropology and population studies. The results of these conferences will be reported to the Congress and subsequently published in the proceedings of that body. The effect of the Center's efforts, which have been occurring over the past year, should be some noticeable shift of emphasis within the field of anthropology from past-oriented static studies to a concentration on world problems presently in need of solution.

The Urgent Anthropology Program continues to support, with small grants, work which is pressing, immediate, and scientifically valuable. During the past year, 11 final reports have been received, including a detailed account of Japanese bear hunting and the adaptation of an outlawed caste to the social structure of modern India.

The Center's American Indian program remains concentrated on the production of the encyclopedic *Handbook of North American Indians*. Over a thousand manuscripts have now been received and editing of them is a major preoccupation of the Center.

A 2-year study of the relationship between economic development and social organization has just been completed. The study, directed by Dr. Sam Stanley, involves seven American Indian communities, Navajo, Papago, Lummi, Pine Ridge Sioux, Oklahoma Cherokee, Morongo, and Passamaquoddy.

The Center also co-sponsored an Ethnographic Film Festival at the Smithsonian from May 10 to 12. This is a part of the continuing effort to establish an ethnographic film archive in the Center for the Study of Man.

## Smithsonian Science Information Exchange, Inc.

The Smithsonian Science Information Exchange (SSIE) continues to expand its coverage and services as the nation's major



source of information on research in progress. Efforts to increase both the completeness and timeliness of its data base have met with success, and more potential users of the system both in and out of government have been reached through an improved educational program.

A number of accomplishments have been achieved in 1973 in improving the system internally including the establishment of an on-line retrieval system using video display terminals for retrieval of information by SSIE's staff of professional scientists and engineers. Initial plans have been developed for a computer-assisted indexing system designed to improve the present system of indexing projects from a scientific viewpoint, thus saving the scientists' time for more difficult conceptual indexing which cannot be achieved by computer systems currently available. Plans for remote on-line interrogation of the Exchange's data base are also being developed in order to provide wider and more rapid access to the material presently available.

The Exchange is currently carrying out, under a Food and Agricultural Organization (FAO) contract, a pilot project which will create a data base of ongoing research in agriculture in some 14 African countries. In addition to the possible inclusion of this information into SSIE's own data base, the material will be utilized to develop a catalogue of the research and provide information and costs that might be expected in the development of a broader base system. Preparation of a 12-volume series of catalogues listing current research efforts by broad fields of science was completed and published by a commercial company during the year. Plans to supplement the volumes on a regular basis are currently being developed. An agreement for publication of information in the Exchange's data base with actual reprints of journal articles has also been negotiated, thus making information in the Exchange available to more scientists in a wider variety of forms.

## Fort Pierce Bureau

The Fort Pierce Bureau, located at LINK PORT between Fort Pierce and Vero Beach, Florida, has continued its basic mission of research in marine biology and geology. Studies include life histories of sipunculan worms, pressure physiology, analysis of gases in submarine and decompression chambers, development of artificial habitats for receiving sabellariid worm larvae or

living worm-reef transplants, preliminary work on decapod crustaceans and fishes of the Indian River region, and completion of a nine-month behavioral study of the American alligator.

Fifty-eight persons attended a national Submersible Safety Seminar hosted at LINK PORT in September to identify problems associated with submersibles and to make recommendations for safe submarine usage. Diving and submarine personnel participated in a simulated 1000-foot dive at the Duke University Hyperbaric Laboratory in January to test performance under the stress of deep diving.

The conversion of the Bureau's submarine tender, the R/V *Johnson*, has been practically completed with such innovations as an aluminum-alloy superstructure, an anti-roll tank located in the pilot house and "flopper-stoppers" off the mast for stabilization, and a recompression chamber below decks aft. Test dives of the Smithsonian's research submersible, the *Johnson-Sea-Link*, have been successfully completed to below 1000 feet. An aluminum-alloy crane, capable of launching and recovering the submersible from the stern of the R/V *Johnson*, has been developed and tested—and this machine completes the mother-ship-submersible-diver system.

A floating laboratory barge obtained in early April from the Environmental Protection Agency is undergoing renovation to become self-contained. It will be used initially as a stationary facility at LINK PORT from which to carry out a biological survey of the Indian River lagoon. Conversion and outfitting of the laboratory barge and the R/V *Johnson* have been made possible by the generous support of Edwin A. Link and J. Seward Johnson.

At the close of the fiscal year the submersible *Johnson Sea-Link* suffered a tragic accident off the Florida Keys. The Smithsonian convened an expert panel to investigate the circumstances which surrounded the incident.

## HISTORY AND ART

THE OBLIGATION OF A PUBLIC INSTITUTION to serve the public is often viewed as simply an obligation to accommodate larger and larger numbers of people. Statistics reflecting the sheer number of viewers, readers, and attenders are proudly circulated as evidence of success in bringing culture and enlightenment to "everyone." But just as our political tradition insists that the rule of the majority must be reconciled with the rights of minorities and of individuals, so too the management of cultural institutions must ever be mindful of the multiplicity of audiences and the variety of tastes. The record of the Smithsonian's museums of art and history provides heartening evidence that a great national institution, supported to a substantial extent by funds appropriated by the Congress, can serve both a mass audience and a number of specialized audiences without developing schizophrenia and without compromising its high standards of scholarship and interpretation. The key to the Institution's success in this regard lies in its encouragement of diversity.

The fiftieth anniversary of the Freer Gallery, which is being appropriately celebrated in its own right by three special exhibitions, catalogues, and symposia, serves to remind us of the extraordinary variety and individuality of the Smithsonian's museums of art and history. On the occasion of the Freer anniversary, the *New York Times* published an article by John Canaday entitled, "The Aristocrat of American Museums Has A Birthday":

Born rich and beautiful just fifty years ago, the Freer Gallery of Art in Washington is the aristocrat of American museums. Like all true patricians who have neither lost their money nor gone to seed, the Freer is so secure in its station that any hint of snobbism, the first symptom of decline from high places, is out of the question.

Mr. Canaday goes on to praise the museum's unfailing devotion to the purpose enunciated by its founder: "the promotion of the finest ideals of beauty as seen in the civilizations of the East." The Freer's success in serving this ideal is a tribute to its four directors—John Ellerton Lodge, Archibald G. Wenley, John A. Pope, and Harold P. Stern—to the successive Regents and



Secretaries of the Smithsonian, and not least to the successive Congresses which have appropriated funds for the support of the Freer without requiring that it depart in any way from its lofty purposes.

If the Freer Gallery is a delight in itself, it is even more remarkable as a counterpoint to its neighbor across the Mall, the National Museum of History and Technology. A year ago we reported here that attendance at the Museum of History and Technology had reached the astonishing figure of 978,728 during a single month; attendance in the month of April 1973 exceeded one million. Drawn by the museum's permanent exhibitions and by the new third-floor galleries that were opened during the year, as well as by a succession of special exhibitions and lectures, visitors to the Museum of History and Technology outnumbered those to any other museum in the world. If they found little of the serenity of the Freer, the exhibits they saw embodied the same high standards of scholarship and excellence of display translated into terms appropriate to the size and nature of a vast and vastly popular museum of American history and technology.

One of the activities that has brought great credit to the Museum of History and Technology is its program of concerts. Making use of ancient instruments in the museum's collection, these concerts by the Division of Musical Instruments present classical or little-known works to small audiences in an appropriately intimate setting. The theme of variety and individuality is again evident when we think of these performances in relation to the enormously popular Festival of American Folklife held on the Mall each year to the delight of hundreds of thousands of visitors. A sampling of reviews of the past year's concerts at the Museum of History and Technology shows that here too the Smithsonian succeeds in maintaining the highest standards of excellence:

Like a born aristocrat, everything Smithsonian's Division of Musical Instruments does is touched by elegance. In a city known for wonderful chamber music, the Smithsonian's offerings stand out because of the unassuming, almost casual dignity of the performances, and because the Smithsonian's fine collection of playable old instruments makes it possible for them to perform 18th-century music in its own rather than in modern terms. (Joan Reinthaler, *Washington Post*.)

Leave it to the Smithsonian to treat us to one of the most unusual cultural offerings of a half-decade, nothing less than a neglected slice of musical and balletic history brought intriguingly to life. (Alan Kriegsman, *Washington Post*.)

Rarely has the art of music been more perfectly served than in last night's exquisite concert in the Smithsonian's Hall of Musical Instruments. (Paul Hume, *Washington Post*.)

The variety of subject, scope, and approach so vividly illustrated by the contrasts between the Freer Gallery and the National Museum of History and Technology, between chamber music concerts and the Folklife Festival, is even more striking when one looks at the full range of Smithsonian art and history museums. The National Collection of Fine Arts, the successor to the Institution's original gallery of art, has now clearly come into its own as the national museum of the history of American art. It has developed an identity and a style of its own. Hilton Kramer, writing in the *New York Times* on the occasion of a major exhibition of the works of Alfred Maurer, recognized this fact:

Under the directorship of Joshua C. Taylor, the National Collection has emerged as our most responsible museological custodian of American art, addressing itself to those disinterested tasks of scholarship and connoisseurship that have been spurned by more fashion-conscious museums elsewhere (particularly in New York). Certainly, it is difficult to think of another institution that would have approached the problems of a Maurer show with the same seriousness and devotion.

Similar enthusiasm was expressed by Paul Richard in his *Washington Post* review of a National Collection of Fine Arts show of religious art in America:

I have never seen a show like "The Hand and the Spirit," now on exhibition at the National Collection of Fine Arts. . . . Jane Dillenger and Joshua C. Taylor have produced a brilliant show, illuminating the varying religious impulses that have fueled this nation's art . . . the great virtue of this exhibition is that it does not struggle to evade [basic questions]. It is a patient show, so thoughtfully selected, so intelligently conceived, that it allows us all our quibbles and then uses them to teach us. In the end it points at truths that few of us have seen . . . Taylor's [catalogue] essay is a classic, as fine a study of American art as I have read in years.

With its brilliant permanent installations, its succession of thoughtful and handsome temporary exhibitions, and its active and imaginative educational programs, the National Collection of Fine Arts meets in its own way the Smithsonian's high standards of excellence in scholarship and communication.

The National Portrait Gallery, which shares an historic building with the National Collection of Fine Arts, has developed its own style during its relatively brief history, and particularly during the last 4 years under the direction of

Marvin Sadik. As something of a hybrid—a history museum that collects and displays works of art to tell the story of the American people—the National Portrait Gallery has developed a reputation for imaginatively conceived and impeccably mounted exhibitions, accompanied by catalogues as handsome as they are informative.

Anyone who has attended exhibition openings at both the National Collection of Fine Arts and the National Portrait Gallery will have sensed immediately that two quite different spirits and philosophies are at work in these two museums. Happily, the Smithsonian can embrace both and can take pride in both.

Undoubtedly this same individuality will characterize two new Smithsonian museums, the Hirshhorn Museum and Sculpture Garden and the Cooper-Hewitt Museum, when they open to the public. Each has a role to play—one as a museum of modern art, the other as a museum of design—and each is already developing its own techniques and its own style.

Continuing delays in the construction of the Hirshhorn Museum and Sculpture Garden have been a source of deep concern and frustration, but there is now every reason to expect that it will open to the public in 1974. The museum's staff and its distinguished Board of Trustees have meanwhile been busy preparing for the opening exhibition of the museum's own collection, and charting the museum's course in fulfillment of the donor's (and the Smithsonian's) hope that it will "act as an intermediary between the artist and the public, and that by acquiring and showing what is new, significant, and vital, we will be instrumental in helping to narrow the aesthetic and cultural generation gap." As for the Cooper-Hewitt Museum, the acquisition of the Carnegie Mansion and the receipt of several substantial grants for renovation and for an opening exhibition give promise that the exciting plans of Lisa Taylor and her staff for using the superb Cooper-Hewitt collections as the basis for a new kind of museum of design will soon begin to be realized.

The separate reports that follow give further evidence of the remarkable diversity and vitality of the Smithsonian. The publication and the enthusiastic critical reception of Volume I of the *Papers of Joseph Henry* is both a satisfying reward for the past efforts of Nathan Reingold and his staff and a happy augury for the future of this great enterprise, undertaken by the Smithsonian in cooperation with the National Academy of Sciences and the American Philosophical Society. The Smithson-



ian's collaboration with the National Academy of Sciences extended also to the cosponsorship of a symposium on the nature of scientific discovery in commemoration of the Copernicus quinquacentennial, organized on the Smithsonian's side by the imaginative and indefatigable Office of Seminars. The Board of Trustees of the Archives of American Art, which manages to combine a strong sense of fiscal responsibility with a clear vision of the national potentialities of the Archives, continued to preside over the measured growth of the Archives by authorizing the establishment of a small office in San Francisco, which is already contributing substantially to the study of American art on the West Coast.

Finally, we must sorrowfully record here the untimely death of Colonel John Magruder of the National Armed Forces Museum Advisory Board.

## National Museum of History and Technology

A most active and productive year at the National Museum of History and Technology, 1973 was highlighted by the opening of five new exhibition halls and the detailed planning for three more.

An exciting and educational challenge from U. S. Treasury Secretary George P. Shultz, formerly Director of the President's Office of Management and Budget, provided an opportunity to attempt to explain what productivity means and how it affects all people, in a large special exhibition on American Productivity: "If We're So Good, Why Aren't We Better?". Utilizing a wide range of exhibit techniques, plain words, striking graphics, and workaday tools, the exhibition brought to focus the many different meanings of productivity together with the advantages and disadvantages, while permitting the visitor to develop his own conclusions and make his own choices for the future of the changing and complex American economy.

The restoration of the center section of the third floor of the museum, a cooperative curatorial and exhibits staff accomplishment of considerable dimension, provides the visitor with a unique panorama of American communications history and new insights into subject areas previously unexplored in the museum, among them a hall of News Reporting which was made



The new Hall of Money and Medals, which opened in July 1972 in the National Museum of History and Technology, attracts many visitors.



possible with the generous support of Time-Life Inc. Included in this area are the Hall of Stamps and the Mails, the Hall of Printing and Graphic Arts, the Henry R. Luce Hall of News Reporting, the Hall of Photography, and the Hall of Money and Medals. These halls represent the first major renovation within the museum since its opening in 1964, and with the publication of descriptive guides of the exhibits, represent a major contribution by the staff of the Department of Applied Arts during the past year.

The Hall of Money and Medals, which opened in July 1972, emphasizes the evolution of the money economy as an integral aspect of the cultural, economic, and social development of human society. The various forms under which money appeared, from primitive media of exchange to coins, tokens, and paper money, or to deposit currencies are shown in their general historical context.

Also opened in July, the new Hall of Printing and Graphic Arts features period shops and significant machinery in the history of printing and type-setting. Demonstrations are offered 4 days a week in the 18th-century printing shop-post office, a 19th-century job printing shop, a 19th-century newspaper shop



The Henry R. Luce Hall of News Reporting, which opened 1 May 1973 in the National Museum of History and Technology, provides a colorful history of American journalism.





The new Hall of Photography in the National Museum of History and Technology, which opened in May 1973, illustrates the history of the art and technology of photography.

and in a typefounder's shop in which 18th-century hand molds are employed.

Stamps and the Mails, while retaining many popular exhibits from the previous hall, explores the search for speed in moving our mail through the utilization of major national transportation systems and improved mechanical mail-handling devices and free city and rural deliveries. The reconstructed front of the Dillsburg, Pennsylvania, post office of 1913 provides another dimension of postal history.

The Henry R. Luce Hall of News Reporting, opened on 1 May 1973, provides a multimedia chronicle of the colorful history, important personalities, and technological advances of American journalism. The new gallery offers an informative look at how news has been gathered and how it has reached Americans from colonial times to our own days of instantaneous satellite reporting.

The Hall of Photography, also opened to the public in April, illustrates the history of the art and technology of photography,



Sir Peter Medawar, distinguished guest speaker for the Frank Nelson Doubleday Lecture Series receives congratulations from Daniel J. Boorstin, Director of the National Museum of History and Technology, 15 February 1973.

including the invention of the earliest light sensitive black and white and color systems. Period settings of the first photographic laboratory (1835), the first professional photojournalist at work (Crimea, 1855), and explorer-photographers in the Far West (about 1875) are among the important exhibit units. Changing print shows, a silent film era nickelodeon theater, and tintype photographs which are taken of visitors enhance the visual and educational experiences available in the new hall.





Secretary S. Dillon Ripley addressing guests at the quinquacentennial celebration of Copernicus at the Smithsonian Institution.

Significant progress has been made during the past year on the Museum's major exhibitions being prepared for the future. A new hall of American political history, entitled "Of the People, By the People, For the People," which will occupy the east half of the second floor, is scheduled for completion within the following year. It will present a thematic exploration of how Americans have shaped their government and, in turn, how the American government has touched the lives of the American people throughout their history.



The Museum's major contribution to the Bicentennial, "A Nation of Nations," will be the largest single exhibition to be produced by the Smithsonian Institution. It will occupy the west side of the second floor of the National Museum of History and Technology, nearly 30,000 square feet. The theme is the contribution of varied streams of people to the making of a new nation with a new identity. The exhibit will concentrate on the formation of a new people and will express the idea that each of these people has woven his own evolving uniqueness into the fabric of a common nation. Experimental modular units of the exhibit have been developed, some objects have been acquired, and the final script is being completed.

When "Of the People" and "A Nation of Nations" are completed, the entire second floor of the Museum will have a thematic unity: the American Experience with the peopling of America occupying the west end of the building; the center area devoted to the fabric and texture of everyday life in the American past; and the east end of the building treating the formalized process of nationhood. The First Ladies Hall will provide a personalized focus of the general themes treated in these other exhibits.

Considerable research and discussion during the year by members of the staff resulted in the furtherance of plans to develop a reconstruction of portions of the 1876 Centennial Exposition in Philadelphia, utilizing objects in the Smithsonian's collections that have been preserved since the closing of the Centennial Exposition.

A new lecture series "Technology and the Frontiers of Knowledge" was undertaken this past year with the sponsorship of Doubleday and Company on the 75th anniversary of the firm, as part of an effort to make the National Museum of History and Technology an even more lively center for the study of our civilization in its many dimensions. Concerned as a whole with the relation between technology and experience in our time, the 1972-1973 Frank Nelson Doubleday Lecture Series presented five distinguished guest lecturers: Saul Bellow, "Literature in the Age of Technology"; Daniel Bell, "Technology, Nature and Society"; Edmundo O'Gorman, "Technology and History"; Sir Peter Medawar, "Technology and Evolution"; and Arthur C. Clark, "Technology and the Limits of Knowledge." The series will continue in the coming year.

By action of the National Armed Forces Museum Advisory Board, the Dwight D. Eisenhower Institute of Historical Re-



Drawing by Leonard Baskin, an interpretation of Copernicus, commissioned by the Smithsonian for the Copernican celebrations.



Representative of outstanding craftsmanship and mechanical ingenuity of the Old World, the Jagellonian Globe, ca. 1510, was one of thirty priceless objects loaned to the National Museum of History and Technology from the University of Cracow, Poland, for *The Copernican Century* exhibition.



search was established in the National Museum of History and Technology. The Institute will concern itself with the "meaning of war, its effect on civilization, and the role of the Armed Forces in maintaining a just and lasting peace by providing a powerful deterrent to war." Dr. Forrest C. Pogue of the George C. Marshall Research Foundation has been retained to assist in planning and programming for the Institute's early years.

The Copernican Century exhibit in April was one of a continuing series of events held to mark the quinquecentennial of Copernicus at the Smithsonian. A special seven-case exhibit featured priceless 15th- and 16th-century astronomical instruments, paintings, wood blocks and other memorabilia borrowed from the Jagellonian University of Cracow, Poland, as well as objects from the Museum's collections to present the changing European scene and view of the world.

The Museum was the site for the issuance of two first-day commemorative stamps by the U.S. Postal Service with appropriate ceremonies. On 23 April 1973 the 8-cent Copernicus stamp was issued as part of the Copernicus celebration, followed on 30 April with the release of 10 8-cent stamps honoring "Postal People." In cooperation with the U.S. Postal Service, the Division of Postal History sponsored Philatelic Dedicatory lectures in the auditorium on these occasions and a third lecture in conjunction with the opening of the new Hall of Stamps and the Mails.

The Division of Musical Instruments sustained an unusually successful year of performances, highlighted by the assembling of a baroque chamber orchestra of 18th-century instruments for a May performance of cantatas of Handel and Rameau with Carole Bogard, soprano. A "Record of the Year" award went to the Division's recording (released by Nonesuch Records) of *Songs of Stephen Foster* with Jan de Gaetani.

The collections were enriched in many areas with the addition of numerous significant gifts, such as Irving Berlin's transposing piano and a violin by Gagliano. The Division of Mechanical and Civil Engineering was fortunate in acquiring a large Swiss-American refrigeration compressor of 1884, believed to be the earliest extant in the country, acquired from the American Brewery in Baltimore, Maryland. Other acquisitions include a sundial made by Christopher Colles of New York, a prominent early technologist and Revolutionary figure; a unique collection of miniature firearms from the late Harry C. Knode of Dallas, Texas; a collection of 300 political campaign objects donated by



Renaissance music and dancing at the formal opening of *The Copernican Century*—an exhibition of scientific instruments and art of Copernicus' time.



former Governor Michael Di Salle of Ohio in memory of Thomas Williams; and the bugle used to sound taps for the funerals of Presidents Kennedy, Eisenhower and Truman from the Secretary of the Army.

The Division of Medical Sciences acquired a large collection of artifacts and instruments from the pioneer bronchoscopist, Dr. Chevalier Jackson.

Numerous important pieces were added to the extensive collections of Ceramics and Glass including Chinese porcelain of the K'ang Hsi Period (1662-1722), gift of Mrs. Jean Mauzé; a rare Bow porcelain figure of Spring, c. 1770, gift of Mr. Hanns Weinberg; an extremely fine pair of Meissen vases with chinoiserie decoration, c. 1724, gift of Mr. and Mrs. Henry Arnhold; eight pieces of late 19th-century "slag" glass (English and American), gift of Mr. and Mrs. Arthur P. Coe; and a fine collection of American glass of the 19th century, gift of Mrs. Alma Duckworth.

A valuable addition to the reference collection of war-ship plans in the Division of Naval History was the gift of 1100 copies of plans of 18th-century frigates, brigantines, brigs, schooners, sloops, and cutters by Historian Emeritus Howard I. Chapelle.

With support from the Mary E. Maxwell Fund, the Division of Pre-Industrial Cultural History acquired materials related to Appalachian rural life, as well as ash-glazed stoneware pottery. Mrs. Alma Duckworth donated 18th- and 19th-century pewter, significantly enriching our collection of American-made metalwares.

Collecting and research by the Division of Ethnic and Western Cultural History were focused on Poland and Polish-American materials, resulting in a traveling exhibit, "The Persistent Crafts of Poland," supported by The Copernicus Society, and including gifts from the Polish Peoples' Republic.

C. Malcolm Watkins was appointed Senior Curator in January after having served as a museum curator for 37 years, 24 of them at the Smithsonian Institution. His distinguished career has included the formation of the Division of Cultural History in 1957 of which he was the first curator and Chairman of the Department of Cultural History, and the development of the popular Hall of Everyday Life in the American Past.

In the Department of Science and Technology an important vacancy in the Division of Electricity and Nuclear Energy was filled with the appointment of Dr. Paul Forman, formerly with



the University of Rochester. He will continue his work in the field of modern physics. In a cooperative venture with the London Science Museum, Dr. Bernard S. Finn, Curator of Electricity, developed an extensive and comprehensive exhibit on the development of the Atlantic Cable while on sabbatical leave.

Cooperative efforts with organizations dedicated to historic preservation continued to be of major importance within the museum. Robert M. Vogel represented the Smithsonian at the First International Congress on the Conservation of Industrial Monuments in Ironbridge, England, continuing at the same time his role as editor of the International Society for Industrial Archeology, producing the bimonthly newsletter and, recently, a series of special publications.

Dr. John T. Schlebecker spent most of the year in England conducting research on American agriculture during the Revolutionary War. While there, he lectured at the Museum of English Rural Life and the Portsmouth City Museum.

The vacancy in the Division of Manufacturing, created by the retirement of Dr. Philip W. Bishop, was filled by Assistant Curator George T. Sharrer. Mr. Sharrer was formerly in the Division of Agriculture and Mining. He is completing a history of the early flour milling industry and has published articles on the indigo trade.

In October 1972 a new Registrar's office within the Museum was established with Miss Virginia Beets appointed Collections Management Officer in charge. During the year Miss Beets and her staff have surveyed registration needs within the Museum and in a number of other private and public museums. It is anticipated that this office will initiate the latest and most comprehensive registration and collection procedures by July 1974.

At the conclusion of this year two of the Museum's senior curators retired. Mr. Mendel L. Peterson, Curator of the Division of Historic Archeology, and Mr. Edgar M. Howell, Curator of the Division of Military History, both in the Department of National and Military History.

Mr. Peterson was appointed as Curator of the Division of Military and Naval History in 1948. He served as Chairman of the Department of Armed Forces History from 1956 to 1969 and became Curator of Underwater Archeology in 1969. Mr. Peterson is an established historian on breech-loading ordnance, and his area of specialization is the systematization of techniques

in the rapidly developing field of underwater archeology. Since 1952 he has explored numerous underwater sites in the Florida Straits, the West Indies, and Bermuda, serving as leader or senior staff member on many underwater expeditions. Mr. Peterson is the author of publications on naval and military history and numismatics, and his work on *History Under the Sea* has become a standard reference.

Mr. Howell came to the Museum in 1956 as Curator of the Division of Military History and was appointed Chairman of the Department of National and Military History in 1969. Previously he had served as Historian in the U.S. Army's Office of the Chief of Military History and as Chief of the Organizational History and Honors Branch of the Department of the Army. Mr. Howell's area of specialization are the uniforms and insignia of the regular Army of the United States. Among his publications are *Uniform Regulations for the Army of the United States 1861* and *United States Army Headgear to 1854* which have become standard references. A third catalogue, *United States Army Headgear 1854-1907*, is presently in press.

## Archives of American Art

Fiscal year 1973 was marked by sharply increased activity in the Archives branch offices in Boston, New York, Detroit, and on the West Coast. The appointment of directors for the Midwest and California offices greatly stimulated the acquisition of archival material from those areas. The establishment of the West Coast office in particular will encourage an expansion of research in American art on the part of students in the Western states.

Among the more important collections received during the year are the complete correspondence and business records of two of New York's most active galleries over the past forty years—the Downtown Gallery and the Midtown Gallery—as well as the business records of the American Art Association, New York's leading art auction house from 1885 to 1925. Personal papers given or lent to the Archives for filming include those of the 19th-century painters Jasper Cropsey, R. Swain Gifford, John F. Weir, and Robert W. Weir, and of the 20th-century artists Gaston Lachaise, Peggy Bacon, and Harold Weston. A small group of early letters from Thomas Eakins to his sister Frances is of much interest to scholars, and the extensive papers



of the sculptor Joseph Cornell and of the art writer Aline Saarinen were particularly significant acquisitions.

This year the Archives has further implemented its policy of microfilming papers owned by other institutions. The records of the Museum of Fine Arts in Boston, and those of Isabella Gardner and of the Isabella Gardner Museum were filmed. The filming of art-related papers at the New-York Historical Society was initiated during the year and a film of Charles Freer's correspondence with artists was acquired.

The accelerated flow of new collections was matched by increased productivity in processing and cataloguing at the Archives' Washington office: 53 collections were thoroughly organized and indexed and more than a hundred additional ones were briefly catalogued.

*Archives of American Art, A Directory of Resources*, compiled by the staff and published by R.R. Bowker Company in the fall of 1972, provides an easily accessible guide to the Archives' holdings. It has been widely and favorably reviewed in professional journals and was chosen by the American Library Association for its list of outstanding reference books of 1972.

Partly as a result of publication of the guide, use of the Archives resources showed a substantial increase over the previous year: 1200 visits were made by researchers in all offices and 900 letters of inquiry were answered by the staff.

Books acknowledging assistance from the Archives during the year include Scribner Ames, *Marsden Hartley in Maine*; Ian Dunlop, *The Shock of the New*; Arnold Glimcher, *Louise Nevelson*; Russel Lynes, *Good Old Modern*; Garnett McCoy, *David Smith*; Richard McKenzie, *New Deal for Artists*; and Francis P. O'Connor, *Art for the Millions*. Among exhibition catalogues and articles dependent on Archives material were *Susan Macdowell Eakins* (Pennsylvania Academy of the Fine Arts); *Alfred Maurer* (National Collection of Fine Arts); *Lily Martin Spencer* (National Collection of Fine Arts); *George Luks* (Munson-Williams-Proctor Institute); *Alice Trumbull Mason* (Whitney Museum); and Abe Ajay, "WPA Years" in *Art in America* (September 1972).

One of the most useful Archives activities is its oral history program. Taped interviews conducted during the year caught the recollections of the artists Robert Motherwell, Zoltan Sepeshy, and Saul Steinberg; the collectors Ben Heller, Raymond Horowitz, Mrs. Vera List, and Mrs. Eloise Spaeth; the art writers John Rewald and Harold Rosenberg; and the dealers Clyde Newhouse and Sidney Janis.



## Freer Gallery of Art

The fiftieth anniversary of the opening of the Freer Gallery of Art to the public was celebrated on May 2. To commemorate this auspicious Jubilee Year, three special events which highlight the research, curatorial, and exhibition activities of the Gallery have been planned. The first program took place on May 2. On that date the Freer Medal "For distinguished contribution to the knowledge and understanding of Oriental civilizations as reflected in their arts" was presented to Professor Tanaka Ichimatsu of Tokyo, Japan, in recognition of his valuable contributions to the study and protection of Japanese art and



Detail from illustrations for traditional texts written by six Ming dynasty calligraphers. By Ch'iu Ying (*ca.* 1510–1552). Ink on paper; handscroll. Height: .230 (9") Width: 4.824 (15' 10"); dimensions are "overall"; actual paintings and inscriptions vary throughout entire length of scroll. Freer Gallery of Art.

that nation's cultural heritage. That evening a dinner was held in honor of the scholars, staff, and friends who have contributed immeasurably to the growth and stature of the Gallery. Later in the evening there was a reception to celebrate the anniversary and a special exhibition of Japanese ukiyoe painting was formally opened. The exhibition marks the first time the Freer has devoted approximately half of its exhibition space to a single theme or school of art and placed on exhibition for the first time large numbers of fine paintings never publicly exhibited before either in the United States or abroad. A handsome 320-page illustrated catalogue was prepared by the Director, and on May 3 and 4 a symposium with scholars attending from all parts of the United States and abroad was organized to discuss ukiyoe painting.

The Director and staff of the Freer Gallery of Art wish to salute all those who contributed with grants of funds enabling the realization of this event.

The remaining two exhibitions and symposia planned for the anniversary year are *Chinese Figure Painting*, scheduled to open in September 1973, and *Ceramics from the World of Islam*, which will begin in January 1974. Staff members are preparing catalogues for each of these special exhibitions. In addition, the Freer Medal will be awarded to distinguished scholars for their contribution to Chinese and Near Eastern Art.

In the course of the year, the Study Collection grew extensively with the addition of 13 items from the noted von der Heydt Collection. Several fine objects from the estate of Mrs. Agnes E. Meyer were transferred to the Collection and have served to enrich it.

In addition to the usual programs, members of the staff produced a movie properly documenting, for the first time on film, the restoration of three Far Eastern paintings by the *hyō-gushi* of the Gallery: Takashi Sugiura, the master restorer, and his two assistants, Shigero Mikkaichi and Makoto Souta. The film was ably directed by Thomas Chase and filmed by James Hayden, both members of the staff.

## National Collection of Fine Arts

May 6 marked the fifth anniversary of the opening of the National Collection of Fine Arts (NCFA) in the renovated Patent Office Building. The permanent collection now occupies some



*The Goldfish Bowl* (Mrs. Richard C. Morse and Family) by Samuel F. B. Morse, a recent accession to the National Collection of Fine Arts.

50,317 square feet of gallery space, each curatorial department has a temporary exhibition space for its own use aside from the area for large temporary exhibitions, and that part of the collection not on view is readily available for study by scholars. A computerized listing of the collection has been made and, apart from the decorative arts, includes more than 15,000 works. The Collection accessions, on an average, 525 works a year. With the completion of two galleries now under construction, all space allotted to the NCFA in the building will be in





View of the Hiram Powers Gallery in the  
National Collection of Fine Arts.

active use for exhibition, research, or administration, and some activities have had to be located outside the building. Another 14,447 square feet of exhibition area was added with the opening of the Renwick Gallery, which has completed an active and successful first year of operation.

The program of studying and presenting the works of less well known artists continued with exhibitions and thorough publications on Alfred Maurer and Lilly Martin Spencer, with smaller presentations of Solon Borglum and Johann Hermann Carmiencke. *The Hand and the Spirit: The Religious Impulse in American Art*, produced in cooperation with the Museum of the University of California at Berkeley, and the Print and Drawing Department's *Artist Naturalist* and *The Ways of Good and Evil* (early 19th century moral and religious prints) continued the museum's investigation of little-explored themes in American art. In all, 33 exhibitions were presented in the Fine Arts Building; of these only 5 were wholly prepared elsewhere. In addition, 9 NCFA exhibitions were maintained in circulation abroad during the year.

A museum training program under a staff committee had its first full year of operation, and included a Master of Arts program with George Washington University and a year-long intern program in museum practice and in conservation. Seven resident scholars, both post-doctoral and doctoral, carried on research in the museum during the year. The Bicentennial Inventory of American Painting before 1914 now has computer listings of 30,000 works, with 3,000 more to be filed.

The Department of Education's Discover Graphics program has expanded to include portable presses for use in the schools. A participatory exhibition for children produced by CEMREL, *The Five Sense Store*, proved to be a useful and popular experiment. An active complement of docents helped in this and the many public activities of the Department, including Portfolio Day, in which aspiring high school artists could discuss their work with visiting art school representatives, and a successful Children's Day for some 3,000 children.

The Renwick Gallery's special opening exhibition, *Wooden-works*, was followed by the popular *American Pieced Quilts* (accompanied by a series of quilting bees); *Objects for Preparing Food*, organized with the Museum of Contemporary Crafts, New York; and *The Arts and Crafts Movement in American 1876-1916*. Of the exhibitions originating abroad, *Brazilian Baroque*, with objects from the 17th and 18th centuries, was particularly

noteworthy and was augmented by two concerts of Brazilian music. Other concerts, lectures, and demonstrations, held for capacity audiences in the Grand Salon, supplemented the exhibition program.

## National Portrait Gallery

The exhibition "*If Elected . . .*" *Unsuccessful Candidates for the Presidency, 1796-1968*, which opened in early May 1972, continued through the end of the year. To celebrate the 139th anniversary meeting of the American Association for the Advancement of Science held in Washington in late December, the Gallery opened an exhibition about *The Lazzaroni*, a group of 19th-century American scientists who banded together in an effort to establish standards of excellence for an American scientific community.



Lady Bird Johnson with sculpture of *Sam Rayburn* by Jimilu Mason. This bust was presented to the National Portrait Gallery by Mr. and Mrs. J. R. Parten, at which time Mrs. Lyndon B. Johnson was the principal speaker.





An exceedingly rare acquisition to the collections of the National Portrait Gallery in fiscal year 1973 was this bust of *Winfield Scott*, executed by William Rush in painted terra cotta about 1814.

Several important portraits were displayed publicly for the first time, and were generally shown with associative material relating to the subjects portrayed. One of the most significant of these occasions was the presentation to the Gallery by Mr. and Mrs. J. R. Parten of a bust of Sam Rayburn by Jimilu Mason, at which time Mrs. Lyndon B. Johnson was the principal speaker.

A large share of the efforts of many members of the staff was spent in the preparation of a book being published by the New York Graphic Society to accompany a forthcoming exhibition, *In*



*F. Scott Fitzgerald*, oil painting from life by David Silvette, one of the 20th-century figures added to the National Portrait Gallery in fiscal 1973.

*the Minds and Hearts of the People: Prologue to Revolution, 1760–1774*. The elaborate installation for *The Black Presence in the Era of the American Revolution, 1770–1800* was performed in the spring of 1973 in preparation for the exhibition's opening on July 4.

Seventy-seven portraits were acquired by purchase, and 40 by gift, during the year. Of special note among the portraits of the 18th and 19th centuries were a miniature of *John Paul Jones* painted in 1780 by Constance de Lowendal, Comtesse de

Turpin de Cresse; an oil of Revolutionary War *General Henry Knox* by Charles Peale Polk after Charles Willson Peale; one of only five known casts of Peter Cardelli's bust of *Thomas Jefferson*, done in 1819, when the former President was 76; and an exceedingly rare work by William Rush, a bust of *Winfield Scott* as a young General executed about 1814.

Among the 20th-century figures added to the collection were the only known life portraits of composer *Charles Ives* (a drawing by Raymond Crosby), the gift of George G. Tyler; and an oil of writer *F. Scott Fitzgerald* by David Silvette. The Gallery received a grant of \$10,000 from the National Endowment for the Arts which was matched by two private contributions of \$5,000 each from Lawrence Fleischman and Howard Garfinkle for the purchase of 10 portraits of major figures of the Harlem Renaissance by Winold Reiss.

## Joseph H. Hirshhorn Museum and Sculpture Garden

Fiscal year 1973 was a period of transition and preparation for the Hirshhorn Museum and Sculpture Garden. Construction neared completion; plans for moving the Museum's Collections were accelerated; and temporary office quarters in Washington were made available for a cadre professional staff. The public opening of the Hirshhorn Museum and Sculpture Garden is scheduled for 1974.

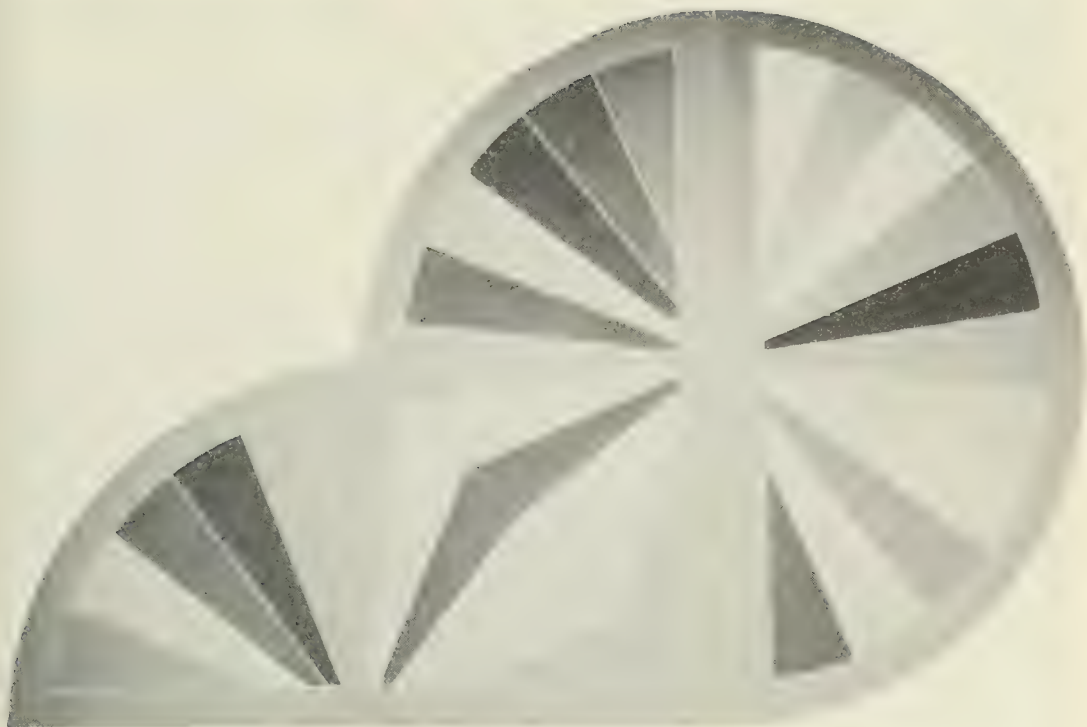
The manuscript for the book-catalogue of the inaugural exhibition was completed. One thousand paintings and sculptures will be documented and reproduced—approximately 300 in color—in this volume, which will serve as an introduction to the scope and variety of the Museum's Collections. Essays by outstanding scholars will contribute to a fuller understanding of the works of art.

Further plans were developed for the inaugural exhibition and future programs. Models, photographic aids, and full-scale mock-ups were used to advance installation ideas and to help determine placement of works in the building and sculpture garden. A Building Manager, Mr. Keith Cumberland, was appointed. Production was begun on postcards, reproductions, and color slides illustrating outstanding works from the Collections which will be available to the public in the Museum shop. Plans were also made for a flexible audio system in the galleries





*Monument to Balzac*, 1898. By Auguste Rodin. Bronze, 8 feet 10 inches high.  
The Hirshhorn Museum and Sculpture Garden.



*Darabjerd III*, 1967. By Frank Stella. Fluorescent acrylic on canvas, 10 by 15 feet.  
The Hirshhorn Museum and Sculpture Garden.

to provide the visitor with a sophisticated individual listening device.

A pilot computer program, incorporating data on the thousand works in the inaugural catalogue, was completed during fiscal year 1973. Documentation of remaining works in the Collections will continue. In addition, research was begun on future exhibitions, including participation in the Smithsonian celebration of the Bicentennial of the American Revolution.

The Board of Trustees met on 11 November 1972 and 12 April 1973. At the spring meeting, the Honorable Daniel P. Moynihan was reelected Chairman and Dr. George Heard Hamilton was reelected Vice-Chairman. Dr. Brian O'Doherty and Dr. William C. Seitz were appointed Advisors to the Committee on Collections.

During this period of transition and growth, the Museum has continued to respond to requests and inquiries from scholars and researchers and has maintained its policy of lending outstanding works of art to national and international exhibitions. More than 125 requests for research information and photographs were answered. Sixty-two paintings and sculpture were loaned to 27 museums, galleries, and institutions. More than 60 scholars, artists, and officials visited the Hirshhorn Museum offices and warehouse. Approximately 1,370 people



*Head of a Woman (Tête de Femme)*, 1923. By Antoine Pevsner. Plastic construction on wood panel, 14¼ inches high. The Hirshhorn Museum and Sculpture Garden.

attended 33 tours of the Hirshhorn Sculpture Garden, Greenwich, Connecticut, for the benefit of educational, cultural, and philanthropic organizations.





Mrs. Kate A. Moore, 1884. By John Singer Sargent. Oil on canvas, 70 by 44 inches.  
The Hirshhorn Museum and Sculpture Garden.



*Ratapoil*, ca. 1850. By Honoré Daumier. Bronze, 17 $\frac{3}{8}$  inches high. The Hirshhorn Museum and Sculpture Garden.

## Cooper-Hewitt Museum of Decorative Arts and Design

Architects and surveyors were a happy sight on the Carnegie property as the first visible sign that planning for the renovation of the Museum's new home is far advanced. A contribution of \$400 thousand to underwrite the opening exhibit for these new quarters was generously provided by S.C. Johnson and Son, Inc.

Parts of the Cooper-Hewitt collections, lent to exhibitions throughout the country, were shown in 33 institutions, including the Metropolitan Museum of Art, Whitney Museum of American Art, National Collection of Fine Arts, Art Institute of Chicago, Worcester Art Museum, Munson-Williams-Proctor Institute, and the M. H. deYoung Memorial Museum.

The collections also had exceptional exposure in London, where they were included in the *Age of Neo-Classicism* show and featured at the opening of the Heinz Gallery and as the major summer exhibition at the Victoria & Albert Museum.

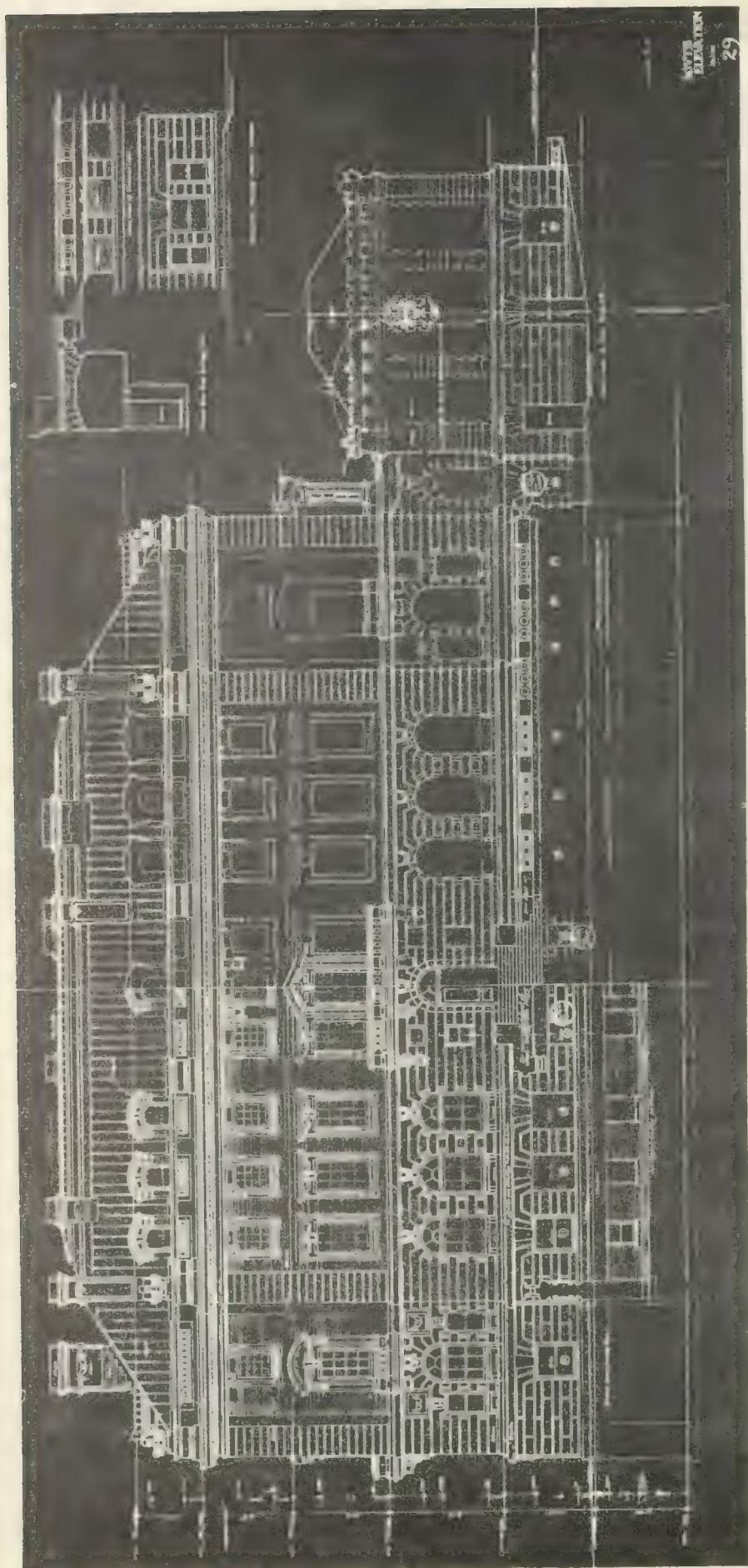
Ninety-six donors gave 3778 works of art. Among the most notable were the entire collection of the Museum of Graphic Arts, 438 prints by leading contemporary artists, including Albers, Archipenko, Baskin, Buffet, Oldenberg, Rauschenberg, Rivers, Shahn, and Warhol; and the Haines marionettes, over 500 items representing the life work of these puppeteers.

Other noteworthy gifts included two Queen Anne needlework covered chairs, two 18th-century French lacquered chests, books of 19th-century textile designs, stage and costume designs by Ariel and by Simon Lissim, architectural designs by Otto Gaertner, an important collection of early wallpapers, and contemporary textiles by Dorothy Liebes.

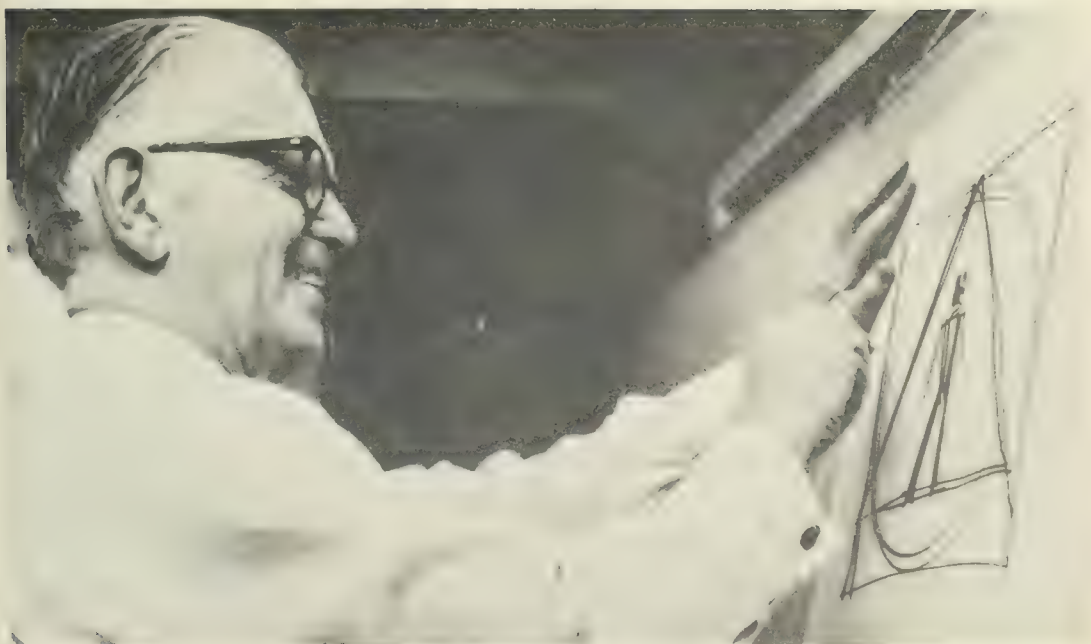
The Library, too, has grown considerably in the past year. The gift of 300 items (color charts, manuals, and portfolios) by the color consultant, Walter Granville, has been a significant addition to the Color Archive. A Symbols Archive was established as the result of a major gift by Henry Dreyfuss, who also left to the Museum his research files and examples of work spanning his distinguished industrial design career.

The Giuliano & Castellani jewels acquired for resale were sold at public auction after 15 of the best examples were retained for the collection. A number of duplicate prints were sold at public auction and several important fabrics were purchased for the collection.





A south elevation of the Carnegie Mansion with an inset of the Terrace Wall and Scullery Window. This elevation was prepared in 1947 at the time that Columbia University leased the Carnegie property from the Carnegie Corporation for their School of Social Work. In February of 1972 the property was given outright to the Smithsonian Institution to serve as home for the Cooper-Hewitt Museum.



The Cooper-Hewitt Museum has acquired the important design collection of the late Henry Dreyfuss, including drawings, correspondence, and speeches, and the world's largest data bank of symbols. This material will form the nucleus of the Doris and Henry Dreyfuss Memorial Study Center. Mr. Dreyfuss is seen in this photograph sketching the logo for his famous *Symbol Sourcebook*.



The Cooper-Hewitt Museum organized a series of computer-run urban games in conjunction with the Environmental Simulation Laboratory of the University of Michigan. At this session of HOUSINGPLAN participants are discussing the development of different kinds of urban construction and the consequences of such construction over a 20-year period.



Following last year's successful conference in Paris, another was organized involving the American design community. The participants explored ways in which the Museum could heighten public awareness of the design process. The Museum's first "Sidewalk Show," sponsored by the National Endowment for the Arts, featured interviews with several leading architects and city planners.

A grant from the New York State Arts Council enabled the Museum to sponsor a series of Urban Games for architects, designers, city planners, politicians, developers, and others influential in shaping the public environment. The purpose of these simulation exercises was to probe various decision-making processes involved in urban development. The Museums Collaborative provided funds to undertake a study on public housing for the elderly.

The Carnegie facilities were made available to a wide variety of educational and professional organizations. Members of the community were offered a program of events which included lectures, tours, and children's workshops. The Friends of the Drawings Department established an acquisition fund to purchase annually one fine drawing or print related to architecture or ornament. In addition to the purchase of several textiles for the collection, the Friends of Textiles have established a color slide catalogue, which eventually will include the Museum's entire holdings.

Objects from the collection were reproduced in 171 catalogues, periodicals, and books. The Museum received considerable and favorable publicity through major articles in the *New York Times*, *Washington Post*, *Baltimore Sun*, *Christian Science Monitor*, *Antiques*, *Antiques Monthly*, *Architectural Record*, *The Designer*, *Harper's Bazaar*, *After Dark*, and the *Smithsonian Magazine*. The press set a very challenging goal by predicting that the Cooper-Hewitt will become "one of the most significant museums to open in many years."

## National Armed Forces Museum Advisory Board

The National Armed Forces Museum Advisory Board continued to provide advice and assistance to the Board of Regents regarding the portrayal of the historical contributions of the



Armed Forces to national development. The Advisory Board continued its investigation of lands suitable for the site of the proposed Bicentennial Park and commenced detailed planning for a special "living history" activity to take place there in observance of the Bicentennial of the American Revolution.

The Advisory Board approved establishment of the Dwight D. Eisenhower Institute for Historical Research in the National Museum of History and Technology. The Institute has as its goal the advancement of knowledge concerning the "meaning of war, its effect on civilization, and the role of the Armed Forces in maintaining a just and lasting peace by providing a powerful deterrent to war."

All were saddened by the untimely death by drowning of Colonel John H. Magruder III, Director of the staff of the Advisory Board, on 2 September 1972. Mr. James S. Hutchins, Assistant Director of the staff since 1963, was appointed Director.

## Joseph Henry Papers

The culmination of five years of preparatory work occurred on 26 December 1972. In the Great Hall of the Smithsonian Building staff members of the Institution and friends gathered to celebrate the publication of the first volume of *The Papers of Joseph Henry*. The handsome book, the first of a series of fifteen, reflected more than favorably on its publisher, the Smithsonian Institution Press. To the members of the Henry Papers, the event was a reminder of the work still undone on volume two and its fellows.

An exhibition of rare books, original manuscripts, photographs, and maps illustrating the career of Joseph Henry, the first Secretary of the Smithsonian Institution, was opened on the 26th of December and remained on display through April 1973. While concentrating on the Albany period of the first volume (1797–1832), the exhibit's coverage also included materials on Henry's years of teaching at Princeton (1832–1846), documents on his service at the Smithsonian (1846–1878), and items illustrating his role as a leader in the American scientific community.

The early reviews have been very gratifying. The Press has received honors for its role in producing the first volume. The Henry Papers staff is exploring the possibility of producing a



S. Dillon Ripley and Nathan Reingold viewing Volume I of *The Papers of Joseph Henry* at the formal release ceremonies, 26 December 1972, Great Hall, Smithsonian Institution.

special volume outside the main series. This would contain a selection of unpublished essays and lectures, principally on the nature of science and its social setting.

## Office of American Studies

The Office of American Studies conducts a formal graduate program in material culture of the United States which is directed to the original Smithsonian purpose: "the increase and diffusion of knowledge." Graduate students from area universities participated in the program, gaining academic credit toward advanced degrees at those universities.

The course in "Material Aspects of American Civilization" was taught by Dr. Washburn (with the assistance of curators and others inside and outside the Smithsonian) to an overflow crowd of 42 students. During the spring semester four seminars were conducted. Cary Carson, Coordinator of Research of the St. Mary's City Commission and Honorary Visiting Research Associ-

ate of the Smithsonian, again gave his seminar in "Vernacular Architecture for Historians." The 14 students enrolled examined and prepared measured drawings of several colonial Maryland houses. Arthur Townsend, Executive Secretary of the Maryland Historical Trust and Honorary Visiting Research Associate of the Smithsonian, gave a seminar to nine students on "The Great Plains," and to three students on "The Photograph As An Historical Document." A seminar on "Museum Behavior" was conducted by Ross Loomis, Visiting Research Psychologist; Robert Lakota, Research Psychologist; and Jean Chen, Learning Research Specialist—all of the Office of Museum Programs. The three participating students were actively involved in measuring visitor behavior in Smithsonian museums as part of their work. A Work-Study Program in Historical Archaeology, offered by the St. Mary's City Commission in cooperation with the American Studies Program of the Smithsonian, George Washington University, and St. Mary's College of Maryland, was held from 18 June to 24 August 1973, with participation by graduate students and Smithsonian staff members. In addition to these formal seminars, supervision of individual reading and research projects, thesis direction, and preparation of comprehensive examinations were undertaken by the director and cooperating Smithsonian staff members.

Staff publications for 1972–1973 are listed in Appendix 8.

## Office of Academic Studies

The Office of Academic Studies, under the direction of the Board of Academic Studies, administers Smithsonian Institution programs in higher education, including fellowship and administrative support for predoctoral and postdoctoral Fellows engaged in independent research, for graduate and undergraduate students in directed research and study assignments, for short-term visitors studying in the Smithsonian's collections, and for departmental seminars.

For academic year 1973–1974, 20 predoctoral and 28 postdoctoral fellowships were awarded. Two of these postdoctoral fellowships were supported by a grant from the National Endowment for the Humanities for research training in American Indian studies. For several years the Smithsonian has cooperated with universities in jointly funding fellowships for graduate students pursuing course work concurrently at their



home universities and at the Institution. This year two such fellowships were awarded in American History at Georgetown University and one in American Civilization at The George Washington University. With the continued development of conservation training programs, the Smithsonian is cooperating in offering laboratory experience to advanced students in conservation. This year three students were supported jointly with the Cooperstown Graduate Programs, and one graduate of the Institute of Archaeology of the University of London was supported by the Smithsonian.

Appointments for directed research and training were awarded to 31 graduate and undergraduate students during the summer and the academic year, of which 8 were supported under grants from the National Science Foundation. In addition, 28 students were appointed under the Museum Study Program. Many of these students receive academic credit from their home institutions for studies conducted at the Smithsonian.

Two departmental seminars were supported. The number of short-term visitors to the Institution again increased, with 35 individuals receiving partial or full support.

## Smithsonian Institution Archives

Archives of the Smithsonian exist throughout the Institution—in the Office of the Registrar, in possession of curators, in all the Museums, and in the central Smithsonian Archives. Archival material not related to the Smithsonian has been received over many years. For example, records related to Indians collected by the Bureau of American Ethnology are kept in the National Anthropological Archives and records documenting the development of the computer are held by the National Museum of History and Technology. The responsibility of the central Archives for these materials varies widely, but given the diversity of the situation, a central source for information about archives is imperative. The Smithsonian Archives and the Smithsonian Information Systems Division have developed a computer program for control of information about archives which is being submitted to curators for comment. Comprehensive intellectual control of archives throughout the Institution will benefit Smithsonian curators and the wider scholarly community.

During 1973, most of the Smithsonian Archives' work occurred in the National Museum of Natural History. One department was completely surveyed, and many records were accessioned to the central Archives; segments of several other departments have been completed and yet others are underway. A guide to archives and manuscript collections of this Museum, including records held in the central Archives and those retained in the Museum, is planned for 1976.

## Office of Seminars

The chief contribution of the Office of Seminars during the year was the Smithsonian's fifth international symposium "The Nature of Scientific Discovery," April 22-26, organized jointly with the National Academy of Sciences as the major American tribute to Nicolaus Copernicus in the year of the quincentennial of his birth. Invited to address the formal sessions of the gathering of scientists, historians, philosophers, men of letters and the arts, and other scholars were: Jacob Bronowski; Charles Eames; Owen Gingerich; Janusz Groszkowski (honorary chairman); A. Rupert Hall; Werner Heisenberg; Gerald Holton; Heiko Oberman; Maarten Schmidt; Owsei Temkin; Stephen Toulmin; and John Archibald Wheeler. These presentations were supplemented by collegia centering on "Science and Society in the Sixteenth Century," "Science, Philosophy, and Religion in Historical Perspective," "Interplay of Literature, Art, and Science," and "The Public Reception of Science: Its Intellectual and Institutional Modalities." Additional features of the symposium comprised special exhibitions (including "The Copernican Century," scientific instruments and art objects of the early Renaissance on loan from the University of Cracow), award of the Hodgkins Medal to Walter Orr Roberts and two Copernicus Society of America Medals to Jerzy Neyman and Edward Rosen, and presentation of the United States commemorative postal issue. Leonard Baskin was commissioned to do an interpretation of Copernicus for the official poster and the souvenir program of the observance. A concert with Leon Kirchner conducting players of the Boston Symphony Orchestra made possible through the support of Edward J. Piszek, President of the Copernicus Society and a patron of the symposium, concluded the formal program.

Carrying the theme, "The Call of Science," 26 April was

designated Education Day to explore the educational implications of the Copernicus revolution. Speakers included S. P. Marland, Jr., Gene Roddenberry (author and producer, "Star Trek" and "Genesis II"), and Athelstan Spilhaus; also offered for young students were a behind-the-scenes presentation on "Scientific Discovery at the Smithsonian" by the Institution's professional staff, seminars, forums, and workshops, nearly all designed to result in the future development of educational audiovisual materials of various kinds. The U. S. National Commission for UNESCO cosponsored Education Day with the Smithsonian. Teachers College, Columbia University, helped with the organization of a special seminar on "Human Resources Planning," dealing with various countries' approaches to scientific manpower. The Folger Shakespeare Library was another collaborator in the symposium by helping assemble a seminar on science and the liberal arts.

The Office of Seminars also conducted a series of regular seminars on "Voluntarism and the Public Interest in American Society" in joint association with the Smithsonian's Office of Development and the Woodrow Wilson International Center for Scholars. Audiences of about 40 persons representing the executive and legislative branches of the Federal Government and the foundation, academic, and cultural communities took part in discussions on such diverse approaches as "The Third Sector in American Society" (i.e., philanthropic endowments), "Foundations and Governments: Enemies or Allies?" and "Citizen Apathy and Initiative." Other activities comprised hosting the American Universities Field Staff documentary film conference, the visiting Chinese Medical Mission to the United States, a seminar on the Yale University study of problems of private intervention in a community conflict, and a seminar sponsored jointly with the Hazen Foundation on the role of esthetic, religious, and ethical values in development.

Wilton S. Dillon, Director, conducted an anthropology seminar, "Human Universals and Particulars," at the University of Alabama in May 1973, and gave a public lecture on Copernicus at the university's new student union. He also participated in the September 1972 Pugwash conference at Oxford University on science and world affairs. He continues to serve as President, Board of Directors, Institute of Intercultural Studies, New York.



## SPECIAL MUSEUM PROGRAMS

THE ASSISTANT SECRETARY for Museum Programs has overall responsibility for the Smithsonian Institution Libraries, the Conservation-Analytical Laboratory, the Traveling Exhibition Service, the Office of the Registrar, the Office of Exhibits, and the administration of the National Museum Act. A detailed report concerning each of the divisions follows. In addition, the Office of the Assistant Secretary is responsible for coordinating Smithsonian-wide activities related to training in museology and museography and the development of new techniques relating to museum administration and procedures. The Office administers workshops, seminars, and training courses which are developed for the benefit of the Smithsonian staff as well as for museum professionals and para-professionals who come to the Smithsonian from museums and historical societies across the United States.

The Office of Museum Programs has recently formed a special Department of Psychological Studies, which is concerned with developing methods to gauge the educational effectiveness of exhibits and exhibit techniques as well as to develop programs so that a larger segment of the visitor population can be effectively enriched by participating in museum-related activities.

With the cooperation of the curatorial and exhibit staffs of the National Museum of History and Technology, the National Museum of Natural History, and the Renwick Gallery, several exhibits and educational programs will be studied and modified to reflect the new knowledge gained from the studies of the behavioral scientists in this office.

Other studies are being conducted, under the direction of the Assistant Secretary, to determine ways by which exhibit design and production activities of the Institution can be made more responsive to the needs of each of the museums and to the demands of an increasingly more aware museum audience.

Recognizing the vital need for increasing the profession's knowledge in conservation, both within and without the Smithsonian, a series of video-taped programs on specific conservation subjects has been initiated in cooperation with the Conver-

sation Analytical Laboratory. It is expected that these will be available, probably in the form of cassettes, during the latter part of next year. In addition, a series of slide lectures, accompanied by taped commentaries on specific conservation problems, will be available for distribution.

In realization that the Smithsonian's growth over the last decade has seriously stressed the various support activities which are directed by this office, a series of studies have been conducted so that they may become more responsive to the needs of the Institution as a whole and to the requests for advice or service which are coming from museums and museum professionals from all parts of the country. It is planned by next year that the results of these studies can be implemented and that more responsive administrative structures can be established to meet the challenge posed by the Bicentennial festivities in which the Smithsonian, locally and nationally, will play a primary role.

The interest in "Drugs: A Special Exhibition," held in the Arts and Industries Building in the summer and fall of 1972, resulted in a major conference on "Altered States of Consciousness," jointly sponsored by the Smithsonian Institution and the Drug Abuse Council, in February 1973, and funded by the Drug Abuse Council. This conference, attended by some 200 specialists, will be summarized in a publication of the papers which are now being edited under the auspices of the Drug Abuse Council.

Finally, the Office of Museum Programs has been closely involved, through members of its staff and the Assistant Secretary, in the activities of a number of professional organizations. Among them, the American Association of Museums, the International Centre for the Study of the Preservation and the Restoration of Cultural Property, and the Advisory Council for Historic Preservation.

## Smithsonian Institution Libraries

A highlight of 1973 has been the opening of a Rare Book Room in the Arts and Industries Building. The room is furnished in 19th-century style but contains modern equipment to insure maximum security and preservation for this valuable collection. A number of Smithsonian Institution curators and distinguished rare book authorities from outside of the Institu-

tion serve as Rare Book Consultants to advise on the acquisition, preservation, and use of rare books.

The reorganization of the Libraries was completed. The objective of the changes involved was to improve services to the users by making the Libraries more responsive to the goals and priorities of the Institution. The Libraries' management staff has established as its highest priority the improvement of direct services to the bureaus of the Institution.

All aspects of the management of the Smithsonian Institution Libraries are now being studied by a team of Smithsonian Institution Libraries staff members. The purpose of this program is to recommend changes which will result in improved services to the users of the Libraries.

The Director of Smithsonian Institution Libraries has been active in the Federal Library Committee's study of potential cooperative activities, particularly with respect to the automation of shared cataloging. The Director of Libraries has also served as President of the 12,000-member Association of College and Research Libraries.

## Conservation-Analytical Laboratory

The Laboratory's thrust toward greater effort in conservation has been increased this year by additional staff, made possible by the borrowing of space in two other divisions. Here, one extra permanent conservator and three temporary internes from institutions in London and Cooperstown have helped reduce the backlog. The Laboratory has continued advice, on request, to 12 bureaus, other museums, and over 800 casual inquirers concerning safe environments for many different kinds of objects and on methods of mounting and cleaning. Documents, graphics, and objects made of leather, metal, wood, ceramics, and merely corrosion products, ranging in date from prehistoric to the present and in culture from Ancient Greek to aerospace, collected or excavated, have been cleaned, repaired, and chemically stabilized. Basic needs have been served by operation of a fumigation plant, installed in cooperation with the National Museum of History and Technology.

Members of the staff have contributed to national and international meetings on various conservation subjects including: training, the ICOM Working Group on metals, medieval window-glass, treatment of paper, neutron-activation analysis,



historic buildings, and have been active in educating the profession by facilitating courses in microscopy of pigments, through the lectures of the Washington Region Conservation Guild, and by collaboration in producing tape-slide lectures.

Analyses have been provided to curators on over 270 samples, resulting in some 6000 elemental and other analyses, using the techniques of ultra-violet emission spectrography, X-ray fluorescence and diffraction, electron-beam microprobe, infrared spectrophotometry, microscopy and neutron activation, applied to resins, pigments, fur, and fibers on objects, such as an Ecuadorian writing box, decorated leather saddles, pigments for application to pottery, colors on a completely decayed lacquer bowl, and stained glass.

## Smithsonian Institution Traveling Exhibition Service

The Smithsonian Institution Traveling Exhibition Service (SITES) concluded its twenty-first year of operation increasing its production of exhibitions that mirror the Smithsonian Institution. The year witnessed many efforts to improve SITES' program, including the development of a computer listing of institutional exhibit customers (some 2000 in all), the completion of a survey of customer needs and views about SITES' program, and the completion of a survey of the educational materials that customers of the service want most to accompany traveling shows. Gifts and contracts to develop traveling exhibitions totaled nearly \$100,000 during the 12-month period; and were received from individuals, government agencies, corporations, and private foundations interested in furthering SITES' efforts to make the Smithsonian available regardless of place of residence.

After completing their tours, seven exhibitions were given to museums in Alaska, Texas, Delaware, and Florida with the proviso that the recipient museum recondition the show and either circulate it locally or exhibit it periodically in their permanent galleries.

SITES' current catalog lists 102 shows covering a wide range of subjects from art, history, and science to urban affairs, social, and world problems.

Approximately 500 exhibit installations were viewed by 4,000,000 persons.

Forty-seven SITES exhibits began their tours between July 1972 and June 1973. Seven exhibits were rebuilt for extended tours. Five catalogues were published by SITES for new exhibits; in addition, 11 catalogues, originally done to accompany shows, were accepted by SITES for exhibitions that began their tours under SITES' auspices during fiscal 1973.

## Office of the Registrar

Registrarial activities throughout the Smithsonian have received increased management attention this year. A Registrarial Council was established, at the suggestion of the Assistant Secretary for Museum Programs, to examine existing procedures and to make recommendations for the development of an improved system with a fully responsive registrar in each museum.

While the above portends change, the Office of the Registrar this year has continued its functions as in the past, serving the public and the museums, staff in various ways.

As usual, more than two million pieces of mail were handled, addressed to the Smithsonian "Institute" in general as well as to individuals and offices in the various museum buildings. Public inquiry mail continued unabated, much of it stimulated by television programs, elementary school projects, and *Smithsonian* magazine articles.

The Office of the Registrar processed 2681 accession memoranda, covering the acquisition of a much greater number of items for the collections. Museum objects flowed in and out on loan for study by professional colleagues and for exhibit purposes, with records of accountability handled by this office.

The shipping office had its normal busy year, processing over 21,000 shipments totaling more than 50,000 pieces. Inbound shipments entailed the accomplishment of more than 140 entries through the United States Customs.

The microfilm project begun last year for the photographing of the original accession records is proceeding on schedule with a great deal of interesting information emerging during the processing of the old papers.

## Office of Exhibits Programs

During the past year, a thorough study of all exhibits operations within the Smithsonian Institution was carried out to

review the processes by which exhibitions are created and completed for public presentation. The result of these studies was a recommendation to rearticulate certain resources of the Office of Exhibits Programs to create individual exhibit design and production components to work in closer relationship with the bureaus that utilize the major amount of exhibit resources. All administrative processes necessary to carry out the recommendation have been completed and newly established exhibit operations will be in effect at the beginning of fiscal year 1974.

Exhibits design and production laboratories at the National Museum of Natural History will be supervised by Mr. Harry T. Hart, at the National Museum of History and Technology by Mr. Benjamin W. Lawless, and at the National Air and Space Museum by Mr. Melvin B. Zisfein. Each of these operations will respond to the Director of the respective bureau. An Office of Exhibits Central (OEC), responsible to the Assistant Secretary for Museum Programs, will be supervised by Mr. James A. Mahoney.

The Office of Exhibits Central will provide exhibit design and production resources to all Smithsonian bureaus and offices that do not have on-staff capabilities and will provide specialized exhibit resources to all Smithsonian units. The OEC will also participate in international and intrabureau exhibits emanating from the Secretariat, training programs in all aspects of exhibits, in coordination with the Office of Museum Programs, and will establish research, evaluation, and development programs in the use and techniques of communication media in museum exhibitions.

During the year and throughout the period of study and reassignments, the Office of Exhibits Programs continued to perform its assigned tasks in exhibits and exhibit-related activities for all Smithsonian units. The Office successfully completed several major exhibitions: among them are the halls of Photography, News Reporting, and Postal History for the NMHT; and special exhibitions on Synthetic Crystals for the NMNH, and on the Joseph Henry Papers presented in the Great Hall of the Smithsonian Institution building. The Office also provided assistance to many other public presentations.

## National Museum Act Program

The National Museum Act, authorized in 1966, received an appropriation of \$800,000 in the fiscal year of 1973. In



accordance with the appropriation legislation, the National Endowment for the Arts and the National Endowment for the Humanities each received \$100,000 from the above sum. Through the National Museum Act, the Smithsonian Institution is able to provide technical aid and assistance to museums throughout the United States and abroad. In addition, funds may be granted for specific proposals that will advance the museum profession at large, either through research, publication, or training. Every proposal funded must clearly describe how it will upgrade the museum profession—its methods, techniques, and approaches. Organizations, museums, universities, and colleges, who have the facilities and staff to undertake programs, are eligible to apply.

Twenty-seven applications were funded including, for example, support for the six Regional Conferences of the American Association of Museums, research on the conservation of flood-damaged books, professional assistance/consultation programs in the states of Kansas, South Dakota, and Massachusetts, a publication *Craft Documentation*, internships in conservation, support for an international exchange program for museum professionals, internships and graduate training for members of minority groups. A full list of projects supported since the Act was initially funded appears in Appendix 4.

## PUBLIC SERVICE

MANY OF THE DIVISIONS within the Office of the Assistant Secretary for Public Service have been engaged in what can best be described as a "national outreach" program this past year. There is a general feeling that the Smithsonian should share its vast resources with audiences other than those who can actually come to its museums, and that the Smithsonian must even improve or enhance the quality of the museum visitor's experience.

*Smithsonian* magazine continues to be one of our prime examples of national outreach. There are now some 450,000 subscribers who became National Associates of the Smithsonian, and who in turn provide us with an expanded audience to relay information about our exhibits, collections, and research.

Each year the Division of Performing Arts conducts extensive field research in the state chosen to be featured in the annual Festival of American Folklife. Through this research, which has been undertaken for the past 6 years, the Division has compiled a unique record of folk arts and crafts throughout our country, and is frequently called upon for consultation—yet another way to extend our knowledge and resources. Some 800,000 people attended last year's Festival, featuring the State of Maryland, and following the Festival, the Division sent many of the popular performances on tour to colleges and universities in 23 states.

In other ways Washington, D.C., serves as a laboratory for testing many of our outreach programs. The Office of Elementary and Secondary Education sends out trained docents to schools in the area with objects from the collections and specialized instruction in conjunction with existing curricula. We hope ultimately to have kits of reproduced artifacts with accompanying manuals or film strips that can be used throughout school systems, nationwide. Local school children are taken on personalized tours through the various museums under the docent program of the Office of Elementary and Secondary Education (OESE), and more and more requests are coming in from out-of-town schools to arrange such tours when they come here. In order to reach the widest number of school children,

OESE has also sponsored teacher workshops here at the Smithsonian.

With the realization that television continues to attract the largest number of persons as a medium of communication, the Smithsonian recently has signed a contract this year with a major independent producer for a series of educational documentaries on various aspects of the Smithsonian. On other communication fronts, the Smithsonian radio program and all of the publications of the Press and the Office of Public Affairs continue to bring to the public more than just a momentary glimpse of an exhibit or a rapid walk-through of a hall.

## Smithsonian Associates

The Associates enjoyed a burst of expansion during the past year, with the introduction of new services and programs for a rapidly growing membership.

Chairman Thomas J. Watson, Jr., convened the National Board in November to consider corporate fund raising. The members agreed to assist in the solicitation of additional Corporate Members, and by the end of the year enrolled a total of 33 companies. Income from 26 corporations was \$67,115. In February, the Secretary and six Board members and their spouses met at the Tropical Research Institute for an intensive introduction to the Smithsonian's Panama Canal Zone scientific program. In May, Regent Watson retired as chairman after two years. He was succeeded by Lewis A. Lapham.

The Contributing Membership (persons making substantial annual donations) grew to 168 members, contributing \$32,966 for Smithsonian research and education as the Institution introduced new membership benefits.

The Women's Committee continued its valuable assistance to several programs, including \$12,000 in proceeds from the third annual Christmas dance. Funds provided scholarships to Associates' classes and supported an Insect Zoo and a student intern at the Museum of Natural History. The Committee produced an appointments calendar, operated the popular Free Film Theater, and assisted in organizing part of the Institution's photographic files.

In July, Janet W. Solinger became director of the Resident Associates' Program. In the year, the area membership grew to 15,000 as an exciting program unfolded; 5,579 persons regis-



tered for 171 classes, workshops, and seminars for adults and children. An estimated 15,000 members enjoyed 30 free events. Another 18,000 persons attended 125 subscription events. Through the generosity of the Women's Committee and the sale of posters donated by the designer, Vera, 260 children were awarded scholarships to Associates' classes.

The Resident Associates drew heavily on the resources of the Institution as 240 members of the staff taught classes or conducted special events. All bureaus in Washington participated, including the Kennedy Center and the National Gallery of Art. Members visited the Cooper-Hewitt Museum in New York. Other institutions cooperating with the Associates included five Washington theaters; Metro; the British and Swedish Embassies; Wolf Trap Foundation; Goddard Space Center; Bethlehem Steel; COMSAT; the Museum of African Art; the Phillips Gallery; the Textile Museum; the Metropolitan, Whitney, and Guggenheim Museums; the American Federation of Art; and Winterthur, and Longwood Gardens. Activities of particular appeal included behind-the-scenes visits to four museums, the Kennedy Center performance/discussion series, "Collectors and Collections" classes which alternated discussions of museum collections with visits to private collections in the same genre, Zoo Night, the Kite Festival, the New American Filmmakers Series, and a seminar on "What's Washington Supposed to Be?"

The Resident Program made a substantial contribution to the unrestricted private funds of the Institution even after introducing *Smithsonian* magazine and a monthly newsletter, the *Associate*, as new benefits at no increase in dues.

More than 550 Associates took advantage of 30 Domestic and Foreign Study Tours to travel with Smithsonian scholars to such places as the museums of the Soviet Union, the Atlas Mountains, archeological sites in Greece and Yugoslavia, the whale-breeding grounds off Baja California, the Apollo and Skylab launches from Cape Kennedy, and Death Valley in the time of flowering. Eighty-five members converged on Washington for Christmas Weekend at the Smithsonian.

The Associates' Reception Center, staffed and in full swing 7 days a week for fiscal 1973, provided over 2900 member families with a cordial welcome and orientation to the Institution. Acting as the Smithsonian's central information office, the Center, with the able assistance of 146 volunteers, handled some 49,000 public and member telephone inquiries. This volunteer

cadre contributed over 12,000 hours of service staffing Center and museum information desks for an 80 percent average coverage rate. Volunteers working on independent projects within various museum departments contributed another 20,300 service hours.

The Museum Reference Service was inaugurated in October, its objective twofold: to provide an additional service for Associate members and to encourage museum-going across the country. Members traveling within the United States were invited to request folders comprised of brochures and lists, by state, of a cross-section of our country's museums, galleries, and historic sites.

The newest service to members and the public, the National Speakers Bureau, has filled over 300 requests since its introduction in October.

## Office of Public Affairs

The problems, potentials, and challenges of the telecommunications revolution for the Smithsonian, including those in the fields of video cassettes, cable television, and audio cassettes have been the subject of exhaustive study by the Office of Public Affairs (OPA) in the past year, in cooperation with other Smithsonian Institution divisions. The Office of Public Service, working with the OPA and other Smithsonian groups, has been negotiating with experienced commercial film producer for joint production of a series of video nature guides. OPA also has developed a contract with a major national television producer for a series of prime-time commercial television programs which hopefully will begin in the 1974–1975 season.

The OPA staff also cooperated in the production of numerous television programs and films by major producers from throughout the world. Work was completed on a half-hour motion picture *The Dilemma of the Modern Urban Museum*, which features discussions by Smithsonian officials of museum audiences and tells how to reach them.

In the past year the OPA news bureau wrote and distributed 325 news releases and 90 radio announcements. These releases, as well as other activities by OPA staff members, played major roles in publicizing the numerous newsworthy events that took place at the Institution. "Radio Smithsonian" began its fourth



year of programming in September 1972. The past year also saw continued publication and expanded worldwide distribution of *Smithsonian Institution Research Reports*, a quarterly launched last year to publicize research work in all fields at the Institution. Other OPA activities included processing a number of information leaflets for various Smithsonian Institution divisions, publication of the *Smithsonian Torch and Calendar of Events*, as well as the revision of guides to Smithsonian museums. These included for the first time translations of three guides into French, German, and Spanish. Visitors' questions were answered around the clock by the Dial-A-Museum and Dial-A-Phenomenon answering services. OPA staff members also handled thousands of other inquiries from visitors and media representatives.

## Office of International Activities

The Office of International Activities fosters new dimensions to Smithsonian programs abroad. The Office has been giving special attention to the development of cultural and scientific exchanges with the People's Republic of China and the Soviet Union, and has been focusing as well on the development of support for American research centers abroad and UNESCO programs for preservation of cultural monuments, notably Philae in Egypt, Moenjodaro in Pakistan, Borobudur in Indonesia, and Carthage in Tunisia. The Office is continuing to work with the United States Information Agency toward expanding the exhibits support provided by the Smithsonian for American cultural presentations abroad. With five currently scheduled exhibitions, the Office has more than doubled its activity in coordinating the presentation of foreign exhibitions in the Smithsonian. With 95 visitors, the Office has also more than doubled the programming of visits by foreign officials to the Smithsonian. During the year, the Office absorbed from the Office of the Registrar responsibility for visa and passport services for Smithsonian staff.

The Office of International Activities administers the Smithsonian Foreign Currency Program, which received an appropriation of \$3.5 million in "excess" foreign currencies for fiscal year 1973 for the support of grants to United States institutions of higher learning for "museum programs, scientific and cultural research, and related educational activities." The pro-



gram has awarded more than \$18 million in foreign currency grants to more than 70 United States institutions of higher learning over the past 8 years. This year the Program has added support for Bicentennial-related exchanges of performing artists and craftsmen to its major interests in archeology, anthropology, geophysics and astrophysics, systematic and environmental biology, and museum programs. In addition, the Program has engaged in extensive negotiations with the Department of State and with other Federal agencies to ensure support for research in these major fields from the new United States-Israel Binational Science Foundation and the United States-Yugoslav Joint Fund for Scientific and Technological Research, which are replacing U.S. Government excess currency programs in the support of research.

## Division of Performing Arts

The Festival of American Folklife, the Jazz Program, the Puppet Theater, and the Smithsonian Touring Performance



One of the participants from the International Ladies Garment Workers Union in the Union Workers Area of the Festival of American Folklife 1972.



An Indian participant from the State of New Mexico at a Pow-Wow at the 1972 Festival of American Folklife.

Service were the major focal points of activity in the Division of Performing Arts.

The sixth annual Festival of American Folklife featured the State of Maryland and presented Indian tribes from the Southwest. The Department of Labor joined the Smithsonian in cosponsorship of the Union Workers exhibit, which was presented for the second year as a major theme of the Festival. In 1973 the Festival was expanded and evaluated as a base for an extended festival to take place during the national Bicentennial in 1976.

The Jazz Program presented a series of highly successful concerts together with workshops and master classes, which provided a unique educational service to area colleges, universities, and schools. The development of a six-volume history of jazz on recordings was completed with a publication date scheduled for late 1973.



Calvin E. Crouch and Calvin E. Crouch, Jr., boatbuilders from Rock Hall, Maryland, and participants in the Waterways presentation at Hains Point Festival of American Folklife, 1972. Maryland was the featured State this year. Photograph courtesy of Ralph Rinzler.

The Smithsonian Puppet Theater moved to a new location in the Arts and Industries building. Expanded seating capacity and increased technical flexibility for productions substantially increased the audience appeal. The Puppet Theater continues as the Smithsonian's prime attraction for young visitors to the museums and has successfully established a continuing audience of area school children and visitors throughout the country.

The Smithsonian Touring Performance Service brought a traveling company from the Folklife Festival, tours of Smithsonian Puppet Theater productions, and performances of unusual music and theater presentation to audiences in 23 states. As requests increased from state and local communities for Smithsonian aid in booking Bicentennial programs, the Touring Performance Service entered a crucial period of expanded national outreach.

The Division of Performing Arts again joined the John F. Kennedy Center and the American Theater Association in the production of the American College Theater Festival. The 10





First Annual Fiddlers Convention and Walt Koken,  
a prize-winner, at the 1972 Festival of American Folklife.

productions selected for the Washington Festival were drawn from more than 300 participating colleges and universities throughout the nation.

The Indian Awareness Program contributed an important portion of the Festival and began a coordinative role with other Smithsonian bureaus to provide greater assistance and accessibility for the national museums to the Native American Community.

## Anacostia Neighborhood Museum

The Anacostia Neighborhood Museum celebrated its fifth anniversary on 15 September 1972 with a re-creation of the program and festivities which took place on the day the



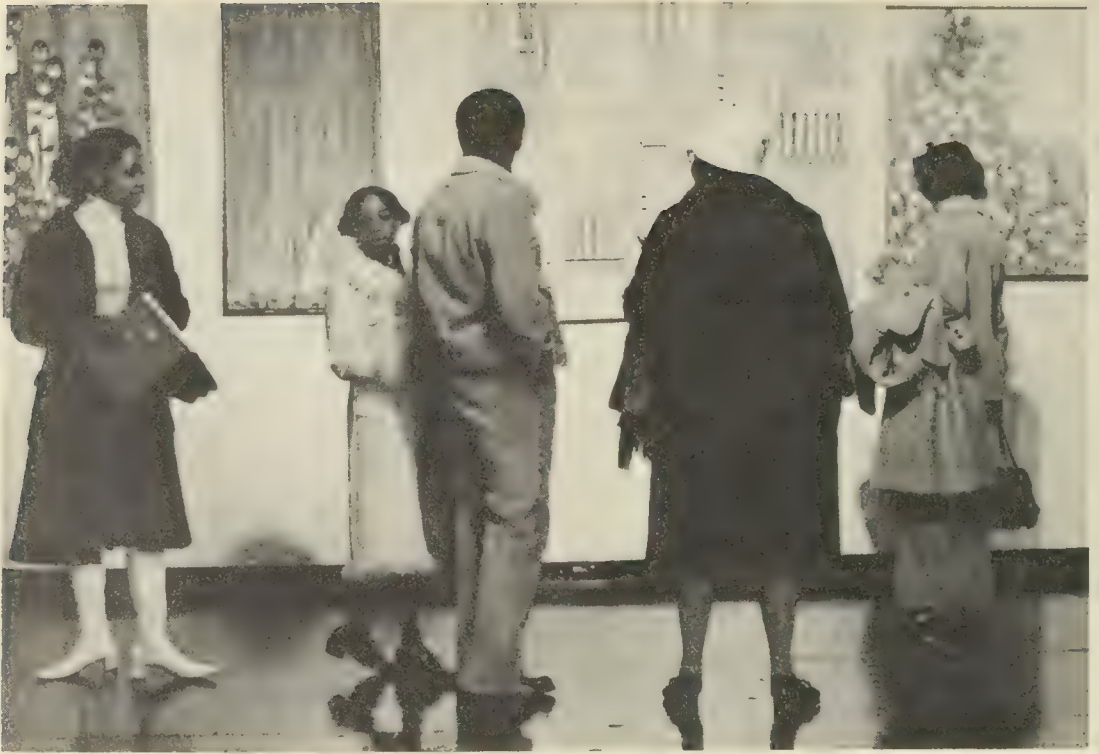
Visitors watch the TV Monitor in the section on drugs during  
*The Evolution of a Community Part II* exhibition.

Museum opened. Smithsonian officials and community leaders addressed an audience of neighborhood residents and visitors from all over the city.

The highlight of the celebration was the opening of the exhibit "The Evolution of a Community Part II," which brought Anacostia's history up to date and focused attention on the five most serious problems plaguing this area of the city: crime, drugs, unemployment, housing, and education. Individuals in the community told how they felt about these problems during sidewalk interviews which were video-taped and shown over TV-Monitors throughout the exhibit.

To document the history of the Museum, a *Fifth Anniversary Book* was published through a grant from the Hattie M. Strong Foundation. Written by members of the staff, the book serves a need that had become more and more apparent as the Museum continued to expand its activities and requests for the story of the Anacostia experience increased. Thousands of copies have been distributed to schools, libraries, community agencies, students, museum people, and visitors from near and far.





The Anacostia Neighborhood Museum and the D. C. Art Association co-sponsored the *Fourth Annual Exhibit* of painting and sculpture by members of the Association.

The Fourth Annual Exhibit of painting and sculpture by members of the District of Columbia Art Association marked 4 years of cooperative effort and mutual support on the part of the Association and the Museum.

### *Smithsonian*

The past year was one of continued growth and acceptance for *Smithsonian*, the Institution's national magazine. Net paid circulation has climbed above 450,000, an encouraging sign of health at a time when many other magazines are faltering or failing. Since these subscribers are National Members of the Smithsonian Associates, they provide a nationwide constituency to which the Institution may increasingly look for understanding and support.

No mere "house organ," the magazine from the beginning has reflected not only the interests of the Smithsonian but also of the world community of museums and research institutions. Nevertheless, a great deal of the editorial content is directly



related to Institution activities. During the past year 21 major articles were either written by Smithsonian staff members or covered, with full-color illustrations, Smithsonian exhibitions, collections, and research projects.

Among other important articles were three on various aspects of the energy crisis (at a time when this subject had not yet reached the front pages), two on the pros and cons of methadone maintenance programs, two generated by the worldwide observance of the 500th anniversary of Copernicus' birth, and virtually one every issue on endangered wildlife species or threatened terrains. All were lavishly illustrated, and often by such widely recognized photographers as Dimitri Kessel, Erich Lessing, Terence Spencer, David Lees, Loomis Dean, Fritz Goro, and two who tragically died during the year, Stan Wayman and Eliot Elisofon.

In June the Institution's highest honor, the Henry Medal, was presented to the editor of *Smithsonian*, Edward K. Thompson, "for distinguished achievements in the growth and prestige of this Institution."

## Smithsonian Institution Press

A highlight of our publishing program this year was the publication on 27 December of the first volume of a projected 15 volumes of *The Papers of Joseph Henry*. Volume 1, *December 1797-October 1832, The Albany Years*, designed by Crimilda Pontes, has been chosen by the Association of American University Presses for excellence of design and production. It will be on display at major universities throughout this country and, under the sponsorship of the United States Information Agency, in numerous countries overseas. Additionally, *The Papers of Joseph Henry* won the design/production award of the Printers Institute of America.

Members of the Press staff wrote and prepared *Seeing the Smithsonian: The Official Guidebook to the Smithsonian Institution—its Museums and Galleries* (published by CBS Education & Publishing Group), and so for the first time in many years our visitors have an attractive, informative, and inexpensive guide to the richness and complexity of our offerings.

Two Press editors won Federal Editors Association Awards for Outstanding Government Publications in 1972: Louise Heskett a first award for "If Elected . . ." *Unsuccessful Candidates*

for the Presidency 1796–1968; Nancy Link Powars a second award for *The Papers of Joseph Henry*, volume 1, December 1797–October 1832, *The Albany Years*.

Three publications, two designed by Stephen Kraft and one by Elizabeth Sur, have received Certificates of Merit in the Art Directors Club of Metropolitan Washington 1973 competition and will be displayed in their exhibition: for the National Collection of Fine Arts, *National Parks Centennial* catalogue; for the Cooper-Hewitt Museum, *Winslow Homer* catalogue; for the National Portrait Gallery, *If Elected*. . . catalogue.

Production costs of 121 publications were funded by federal appropriations in the amount of \$301,369; nine were supported wholly by Smithsonian Institution private funds in the amount of \$106,200. The publications list for 1973 is given in Appendix 9. The Press warehouse, the Superintendent of Documents, and George Braziller, Inc. (the Press' sales and distribution agent) shipped, on order and subscription, a total of 161,634 publications during the year. In addition, 93 recordings were distributed by the Press.

## Reading Is Fundamental, Inc.

The National Reading Is Fundamental (RIF) program is now in its sixth year as an independent unit under Smithsonian sponsorship. The purpose of Reading Is Fundamental, Inc., is to promote the establishment of local RIF projects throughout the country to give impetus to reading motivation at an early age by making inexpensive books, particularly paperback, accessible to children through ownership, loan, and purchase. More and more, RIF is moving toward a design as a dynamic evolving process—not merely giving books to children but moving from that initial motivational factor to lending and selling, and to developing a variety of programs to use books in increasingly more effective ways. RIF hopes this will lead to the increased use of school and neighborhood libraries and to the acquisition of a personal home library by young people and their families.

The number of active RIF programs has grown from 55 in 1972 to 122 in 1973. Another 50 projects are in the developing stage. RIF programs distributed around 850,000 books to 250,000 children during the past year. To date one million children have received over three million books.

The national RIF program sets goals and guidelines, provides project development materials and technical assistance to local RIF projects throughout the United States. But the strength of RIF projects lies in their grass-roots involvements, for each community organizes, develops, funds, and runs its own program.

All of the projects, however, need help and guidance from national RIF in various stages of their development and growth. Therefore RIF is expanding and developing varieties of new materials and services which only the national office can provide to meet the needs of the rapidly growing number of local programs. The Edna McConnell Clark Foundation grant of \$1,150,000, covering the period 1972–1975, is on a declining scale annually. The grant gives RIF the opportunity and time to stabilize in its current period of rapid growth and to develop a broad base of support for the future.

Policy direction is provided by a Board of Directors on which the Secretary of the Smithsonian, S. Dillon Ripley, serves as an ex-officio member. Mrs. Robert S. McNamara is Chairman of the Board.

## Office of Elementary and Secondary Education

An impressive 30 percent increase over last year in the number of school children of the Washington metropolitan area who have been served by the program offerings of this Office in the Museums on the Mall is reflected in the totals of 100,200 students served by 2996 tours plus 292 outreach presentations.

Four new lesson tours for the National Museum of History and Technology and four new lesson tours for the National Museum of Natural History were developed and offered during the current academic year.

An expanded force of Volunteer docents, now numbering 235, has been recognized for its important role in educational programming at the Smithsonian by the receipt of a grant of \$10,000 from the Ambrose Monell Foundation awarded to the Institution to be utilized specifically for docent training.

With a critical awareness of the impending need to vitalize the lines of communication between the Smithsonian and the school community it serves, as well as others concerned with museum education, major developments have been undertaken to point



up the potential for using the Washington area in a more effective fashion for education programming. The newsletter to schools has been modified in format, given the new title *Let's Go*, and increased to six issues. A variety of subjects has been treated in an endeavor to bring instant awareness to teachers of on-going programs by way of this medium. Museum Education Day at the Smithsonian was conducted this year in March, utilizing the format of twelve workshops where invited participants dealt with problems and interests affecting museums as an educational resource. Additionally, separate workshop sessions for teachers have been conducted throughout the year both under the aegis of this Office as well as with our staff in conjunction with the Museum Education Roundtable of Washington.

## Belmont Conference Center

The Belmont Conference Center, entering its seventh year of providing facilities for off-site meetings, finds itself increasingly in demand.

Previous records have been exceeded in every facet of operations during fiscal year 1973: an increase to 1,730 guests, over 1,650 in 1972; a total of 88 conferences compared to 79 in 1972, and a sizable rise in the number of days of occupancy. Representatives of Federal agencies make up about 60 percent of Belmont's schedule with the balance from universities and colleges, international study groups, foundations and philanthropic agencies, and private industry.

The 240-year old manor house, renovated and modernized, can accommodate 24 residents with facilities for meetings of 30 people. The rural atmosphere of the residence and 365 acres of fields and forests are particularly productive and enjoyable for guests. The existence of such an environment, together with the advantages of easy access to Washington and to Baltimore's Friendship Airport continues to be most attractive and convenient to Belmont conferences.

# ADMINISTRATIVE MANAGEMENT

## Support Activities

During the past year several support staff members actively participated with the Smithsonian Agenda Working Group in studying and helping to resolve serious, major management issues. The individual and collective contributions they made toward improved management are recognized and duly appreciated.

Of the conclusions reached at the Belmont Priorities Conference in February 1973, the most significant decision with respect to the support group units was: "Institutional management will give high priority to obtaining a better funding balance for support activities. . . for the coming year, in order to bring them more nearly in line with program requirements." Significant in making this determination was the acknowledgment that "In the face of less than satisfactory financial resources, the support organizations have performed exceptionally well." These actions are gratifying indeed, but they do not lessen, in fact, they reinforce the responsibility of each support organization to continue efforts to improve its operations, to examine its performance, to establish realistic goals, and to assure that its program plans are designed to coincide with and support enthusiastically the Smithsonian Institution's goals and priorities. Brief summaries of the major activities of the units in this group are given below.

### BUILDINGS MANAGEMENT DEPARTMENT

The Buildings Management Department carried out its basic responsibilities for the operation, maintenance, renovation, and repair of Smithsonian buildings. Continuing efforts were made to improve the effectiveness of these operations. This included monitoring and updating standards for housekeeping and maintenance; developing a centralized supply inventory; establishing a special unit to handle warehousing, moving, and

operation of outlying buildings; and expanding the landscaping program. A professional horticulturist was employed to supervise the Landscaping and Grounds Section and to develop overall planting plans for the Institution, which includes an indoor planting program for the museum buildings.

Major projects undertaken during the year included continued planning and assistance on the construction of the new National Air and Space Museum; developing the design and contract documents for the major restoration of the Arts and Industries Building; designing and installing architectural exterior lighting for the major museum buildings; and preparing design work for alteration of the National Portrait Gallery's area on the third floor of the Fine Arts and Portrait Galleries.

In January 1973, the Protection Division, Safety Management Office, and Health Services were transferred to the new Office of Protection Services which reports to the Director of Support Activities.

## INFORMATION SYSTEMS DIVISION

Information Systems Division develops and coordinates the use of automatic data processing support throughout the Institution. Advances continued to be made through computer utilization in the areas of administration, management of national collections, and scientific research, and most bureaus increased their use of this support. Research was conducted to enhance the ways of entering data into the computer and methods of obtaining better output products, such as optical character recognition for entering data directly from a printed page, terminal devices to enable telephone communication with the computer, and computer output to microfilm and microfiche, as well as plotted maps and other graphic presentations.

Individual research assistance to curators and scientists expanded and broadened in scope as the Division made available additional mathematical techniques and software packages. New developments and refinements enhanced support for the management of the national collections in history, art, and science. A recently developed, but not yet completed, generalized information management package called SELGEM has aroused much attention within and outside the Institution because of its potential as a standard for the computerized management of collections.

Within the Institution, data from 85 various collections has



been entered into the system. Outside of the Institution 7 university-museums are using it in their collections management processes. As a service to the museum and university community at large, the Division publishes information about the SELGEM system in its technical bulletin, *Smithsonian Institution Information Systems Innovations*. The "Innovations" series acquaints the reader with automated systems and procedures specifically designed to solve collection and research problems in museums and herbaria.

Though no totally new systems evolved during the year, many specialized systems for administration, curation, and analysis were expanded to meet changing requirements.

### MANAGEMENT ANALYSIS OFFICE

The Management Analysis Office continued to carry out its major responsibilities for providing assistance to meet selected administrative management issues and problems, administering the Smithsonian's management issuances system, and directing the Institution's active program for the efficient and economical management of forms and other formatted issuances. The increasing importance of the analysis and solution of problems was evidenced by the three large-scale studies made during the year in conjunction with the Smithsonian Agenda Working Group. Another survey, started in June, is expected to continue for several months. In the spring, the Office made an intensive review of its role, its functions, and its work performance, status, and reporting. The visible results of this self-analysis provided: a management report that summarized projects completed over a 12-month period and the work status of other projects on hand; a simple but comprehensive system designed to categorize, assign, monitor, and report work projects; and a statement for the Secretary's signature describing the Office's several responsibilities and functions.

The Automatic Data Processing (ADP) program developed to support forms management and control was placed in operation. It will be tested during the early part of fiscal year 1974 with full implementation anticipated some 6 months later.

### OFFICE OF EQUAL OPPORTUNITY

The Office of Equal Opportunity, under the leadership of the Secretary, continued the Smithsonian Institution's affirmative

policy for the realization of equal opportunity objectives. This year saw an acceleration of action plan goals by the training and appointing of 19 part-time EEO Counselors and 2 part-time Investigators, the selecting and training of a part-time Coordinator for the Sixteen-Point Program for Spanish-surnamed Americans, and the augmenting of the Equal Opportunity staff by the addition of a Women's Program Coordinator and a Civil Rights Specialist.

The bylaws of the Smithsonian's Women's Council have been drawn up and early adoption is anticipated. Discussions concerning a Day Care Center program generated much staff interest and enthusiasm. Plans are being developed for museum exhibits portraying the contributions women have made to American history and to the work of the Smithsonian Institution.

Matters of personal concern to a number of employees were reviewed, factual information developed, and necessary adjustments made to the satisfaction of those involved. In three instances, formal complaints were filed and investigatory steps taken.

Four special training Work Shops were conducted for employees assigned to supervisory positions. These discussions concerned all levels of supervision relating to the acceptance, fulfillment, and continuing support of the equal employment program philosophy.

## OFFICE OF PERSONNEL ADMINISTRATION

Emphasis on responsiveness and positive assistance was complemented by increased effort in human resources program development. Workload volume expanded, but efforts to increase productivity provided enough manhours to upgrade some existing programs while establishing new ones. A Personnel Management Effectiveness Evaluation Program was established that includes management participation, consultation, formal surveys, feedback, and internal assessment. A survey was conducted by the Office at the National Zoological Park, and staff members participated on four management studies conducted by the Smithsonian Agenda Working Group.

A goals document that encompassed the gamut of personnel management programs was prepared as a first step toward better program planning. This was one of the methods explored in our desire to achieve maximum productivity without adversely affecting service or quality. The document included

individual projects, names of responsible individuals, and target dates. Some projects are aimed at improving existing services and others represent new or innovative services.

This Office worked closely with the Equal Opportunity Office to assure that all personnel management related projects and activities were being accomplished. A new monitor system was adopted.

Labor-Management Relations continued to be an active program as one new contract was negotiated and two other contract renegotiations commenced. There was marked improvement in direct communications between union officials and supervisors. The union was consulted step-by-step as two major reorganizations were accomplished. This process contributed to the fact that no grievances or formal complaints emanated from these reorganizations.

Training activities included a special program for supervisory personnel in one bureau, Learning Lab programs, a course for EEO Counselors, a new course entitled "The Supervisor's Role in EEO" and another new course called "Dealing Effectively with People."

A *Handbook for Employees* was distributed to all employees and also is distributed during the orientation sessions for new employees. A slide/tape presentation was developed for use during these orientations.

An Employee Action Program that emphasizes the identification of potential problems and the prevention of serious problems in employee relations was developed to assist in the area of discipline. The Awards Program was highlighted by a second Annual Awards Day.

This was a year of complex major reorganizations, complicated by conflicting priorities in average grade reduction, upward mobility efforts, manpower and budget restrictions, increasing productivity, more effective position management, and equity in promotion actions. With the support of the Executive Committee, Bureau Directors, supervisors, union representatives, employees, and other staff offices we were able to make significant progress toward more efficient and more economical management of our human resources without compromising quality or human values.

In January, the Health Units were transferred to the new Office of Protection Services which reports to the Director of Support Activities.



## OFFICE OF PROTECTION SERVICES

The Office of Protection Services was organized on 7 January 1973, and assigned the responsibility of directing the health, safety, and security protection programs for the Institution. Special emphasis placed on safety program goals resulted in the Institution's being nominated for and successfully winning the President's Safety Award for 1972.

The Protection Division stressed personalized assistance to visitors in addition to its primary responsibility for the security of the Smithsonian buildings and their occupants and contents. Guards were furnished for 232 special events. Among the most prominent activities in which the security guards participated during the period were the two 1973 Presidential Inaugural Balls held in the History and Technology Building and in the Natural History Building, and the reception for Vice President Spiro T. Agnew in the History and Technology Building. These events were attended by members of the Executive, Judicial, and Legislative branches of the government as well as the entire Diplomatic Corps, and required extensive planning, coordination with other security officials, and the highest degree of security.

The basic guard school which must be completed satisfactorily by newly employed permanent guards before they may be given Special Police Commissions was increased from 40 hours to 80 hours of instruction. Refresher training classes were conducted for guards and supervisors.

## PHOTOGRAPHIC SERVICES DIVISION

With receipt of its first major budget increase in October 1972, the Division hired some additional personnel, purchased equipment, and improved production techniques. Production of photographic services increased and much work formerly contracted out to commercial sources was accomplished in-house. A new ADP production reporting system was inaugurated and will be implemented fully on 1 July 1973.

Assignment Section: Compared to last year, studio and location photography increased approximately 20 percent and microfilm photography increased by 470,000 frames. Over 30 million documents in various stages of deterioration must be microfilmed soon.

Laboratory Section: Production increased 15 percent over last

year, with the largest increases in copy work, slide duplication, and microfilm processing. The laboratory processed 432 100-foot rolls of microfilm representing 520,000 frames. Black and white print production is expected to increase by 10,000 over last year. Restoration was begun, by photographic processes, on 5,700 glass and nitrate negatives. Plans were initiated to remodel the laboratory in the Arts and Industries Building for color slide and transparency duplicating and processing.

**Library Section:** The Information Systems Division and Management Analysis Office programmers and analysts developed an ADP program for cataloguing and retrieving data on all negative holdings. Information about 200,000 Smithsonian photographs soon will be entered in this system.

**Customer Service Section:** The Customer Service Section, formerly the Sales Section, received approximately 7,200 public inquiries, involving over 1,800 orders for photographic materials, and sales receipts increased by 20 percent over last year. The Section administers the color slide lecture program by producing color slides with lectures on the Smithsonian's many subjects and objects. These materials, designed for every grade level from kindergarten through college, including adult education programs, will be available to every school library in the country for use by teachers in classroom lectures. They also are available to other interested groups. Sets on the First Ladies Gowns and on Rare Stamps are available. Three sets on our Zoo Animals, one on Air and Space, and two on American Indians will be ready in January 1974. In June, 8,000 sleeves of 5 slides each of Zoo animals and the Air and Space exhibits were completed for sale in the Museum Shops.

## SUPPLY DIVISION

The Supply Division again experienced an increased workload in its procurement and contracting responsibilities primarily due to the general expansion of the Smithsonian Institution, and all indications point to continuing accelerated growth of both these responsibilities. The successful accomplishment of this increasing workload, with no additional personnel, is recognized as a major contribution to the achievement of the program goals of all Smithsonian organizations and a testimonial to the ingenuity, resourcefulness, and dedication of all Division employees.

The initial major procurements for the new Hirshhorn Museum and Sculpture Garden will be finalized this fiscal year.

Preliminary planning is underway for the Division's involvement in the opening of the new National Air and Space Museum.

The Division continues to be an active participant in the acquisition of useful excess government property to satisfy the needs of the Institution's many organization units. Excess property acquired this year is valued at \$850,000.

### TRAVEL SERVICES OFFICE

The Travel Services Office has experienced yearly increases in all of its major activities since its first full year of operation in 1968. Factors responsible for this growth are twofold—as Smithsonian programs have expanded and travel needs have become more unusual, complex, and essential, Smithsonian travelers concurrently developed complete confidence in the Office's ability to meet urgent and intricate requests on a timely basis. The staff of only four employees has not increased since 1969 but, despite this, the high performance standards maintained by the Office have not deteriorated. Travel services are provided efficiently, economically, and courteously. To cite only one of many satisfied travelers, "tso delivers when the chips are down."

During the year, in addition to furnishing travel services, program planning assistance, and technical guidance on a day-to-day basis, travel arrangements, advisory services, and detailed planning data were furnished for the Annual Folklife Festival; for national and international conferences; and for meetings and archeological expeditions in Yugoslavia, Israel, and Greece. Of particular interest was the Fifth International Symposium held in Washington, D. C., in observance of the 500th anniversary of the birth of Nicolaus Copernicus. Closer liaison had to be maintained this year with the airlines to accomplish increasingly complicated travel performed under the Smithsonian's Special Foreign Currency Program.

### International Exchange Service

The International Exchange Service is the one program bureau included in the support group. During the year, the Service received approximately 800,000 pounds of publications from organizations in more than 100 countries. Approximately



100,000 pounds of publications were received from the foreign exchange bureaus for distribution in the United States.

Over 800,000 official United States documents weighing approximately 450,000 pounds were exchanged with 94 organizations in 64 countries for their official publications.

The daily issues of the *Congressional Record* and the *Federal Register* were exchanged with 132 foreign libraries for the parliamentary journals of other countries.

Publications weighing approximately 530,000 pounds were forwarded by ocean freight to 38 exchange bureaus in 32 countries for distribution to the addressees. Over 250,000 pounds of publications were mailed to addressees in countries not having exchange bureaus.

The number of medical and dental organizations in the United States exchanging their duplicate journals and books with medical and dental libraries in other countries has continued to increase.

The Duplicating Section, administered by the Director of the International Exchange Service, eliminated considerable backlog during the year. This was accomplished through recruitment of one additional member as well as by adding some new equipment to the Section.

# NATIONAL GALLERY OF ART

J. CARTER BROWN, *Director*

THE NATIONAL GALLERY OF ART, although technically established as a bureau of the Smithsonian Institution, is an autonomous and separately administered organization. It is governed by its own Board of Trustees, the statutory members of which are the Chief Justice of the United States, Chairman; the Secretary of State; the Secretary of the Treasury; and the Secretary of the Smithsonian Institution, all ex officio; and five general trustees. Paul Mellon continued as president of the Gallery and John Hay Whitney as vice president. The other general trustees continuing to serve were: Dr. Franklin D. Murphy, Lessing J. Rosenwald, and Stoddard M. Stevens.

During the fiscal year 1973 the Gallery had 1,619,850 visitors.

A number of important paintings were acquired, among them: *Nude Woman* (1910) by Pablo Picasso, Ailsa Mellon Bruce Fund; *Woman Ironing* by Edgar Degas, from the Collection of Mr. and Mrs. Paul Mellon; *Italian Landscape* by George Inness, Ailsa Mellon Bruce Fund; and *St. Matthew with an Angel*, Simone Cantarini, gift of James O. Belden in memory of Evelyn Berry Belden. Among the important drawings acquired during the year were: *Landscape with the Penitence of Saint Jerome* by Pieter Bruegel; *Head of a Boy* attributed to Lorenzo di Credi; *Study for Two Stained Glass Paintings*, Hans von Kulmbach; *Venus*, and *Adonis*, by Pierre Paul Prud'Hon; and *St. Michael*, Giulio Romano. In total, the Gallery acquired 25 paintings, 3 sculptures, 25 drawings and prints.

The most popular exhibition presented during the year was *Impressionist and Post-Impressionist Paintings from the U.S.S.R.*, which was attended by 316,408 persons during its four-week showing. Other notable exhibitions held at the Gallery included: *Old Master Drawings from Christ Church, Oxford*; *Frederick Law Olmsted/U.S.A. (1822-1903)*; *A Survey of the Mezzotint Technique*; *The Far North: 2000 Years of American Eskimo and Indian Art*; *Etchings by Rembrandt* and *Prints of the Italian Renaissance*.

The Gallery's multimedia education program, *Art and Man*, published in cooperation with Scholastic Magazines, Inc., reached 6750 classrooms in every state of the country. The magazine *Art and Man*, an integral part of this program, reached a circulation of over one and one-half million—the largest of any art magazine in the country. Special color slide collections along with 40,000 filmstrips and recordings also were distributed as teaching components of the program.

The total number of bookings of Extension Service materials, 66 films, filmstrips, and slide lecture subjects was 29,432. The total estimated attendance covering all 50 states and many foreign countries and United States military installations abroad was 4,356,814.

During the year the Gallery's new hour-long documentary film, *Leonardo: To Know How To See*, was shown on national television and through 308 bookings was viewed by approximately 33,880 people. The Gallery also began distributing Kenneth Clark's six-part film series, *Pioneers of Modern Painting*, made possible by a grant from the National Endowment for the Humanities. Three hundred and one small colleges received these films free and showed them to audiences totaling more than 300,000. To document the exhibition *Impressionist and Post-Impressionist Paintings from the U.S.S.R.*, the Gallery, with funds from the National Endowment for the Humanities, produced a new film entitled *On Loan from Russia: Forty-One French Masterpieces*, which was initially aired by the Public Broadcasting Service.

Total attendance at talks given by the Gallery's Education Department and at the programs presented in the auditorium was 148,933. These included the regularly scheduled Sunday auditorium lectures and films, the Introduction to the Collection, the Tour of the Week, and Painting of the Week. There were 33 guest lecturers including the twenty-second annual A. W. Mellon Lecturer in the Fine Arts, Jacques Barzun, who gave a series of six talks on *The Use and Abuse of Art*; and Carl Nordenfalk, the Kress Professor in Residence.

The Gallery has begun the expansion of its Conservation Department with the appointment of a new staff of conservators, Victor C. B. Covey, Chief of Conservation; Kay Silberfeld, Conservator of Paintings; John Krill, Conservator of Works of Art on Paper; and Eleanor Labaree, Conservator of Frames. Remodeling of laboratory facilities is now underway.



After the opening of the new building, the department will be relocated in the area now occupied by the cafeteria and adjoining offices. In the meantime, the conservators are surveying objects in the collections as to condition, and are starting on the necessary treatment.

Studies on various aspects of painting materials and materials used in conservation continue with support from the Andrew W. Mellon Foundation at the Gallery's Research Project at the Carnegie-Mellon Institute under the direction of Dr. Robert L. Feller.

The Library's staff has been increased, a necessary step towards the capability to serve the projected Center for Advanced Studies in the Visual Arts. A new position, Chief Librarian, was created and J. M. Edelstein was recruited from the University of California at Los Angeles to fill it. The Library added 7,743 publications to its collection and 160,782 photographs to its archives, more than half of which were turned over by the Library of Congress.

Through its self-service sales facility, the Gallery made available six special exhibition catalogs and five posters connected with the exhibitions. Continued public interest in the Gallery's reproductions, postcards, and art books is evidenced by the patronage of 264,104 people in person and 6,073 by mail.

The Concert Programs continued with 40 Sunday evening programs in the East Garden Court to which the public is admitted without charge. All were well attended and were also broadcast live on a local AM-FM station. The three opening programs of the season, entitled *A Festival of Symphonies*, were the Gallery's welcome to the initial season of the John F. Kennedy Center for the Performing Arts. Among the works offered were eight world premieres.

Work continued on the new East Building during the year with all basic construction below grade accomplished. This addition is being built largely with funds donated by Mr. Paul Mellon and his late sister, Ailsa Mellon Bruce. With its connecting link under Fourth Street, it will nearly double the Gallery's exhibition and auxiliary space when finished in 1976. By 30 June 1973, the work was 20 percent completed.

# JOHN F. KENNEDY CENTER FOR THE PERFORMING ARTS

ROGER L. STEVENS, *Chairman*

TO THE PRACTICAL OBSERVER, there could be little doubt that the Kennedy Center's first season would be a success. Years of anticipation, speculation, hope, and controversy would make the new memorial an irresistible attraction—and indeed, this proved to be the case. What doubts there were seemed to be centered on prospects for sustained public interest during future seasons. To the delight of all associated with the Center, however, the second season was received with an enthusiasm surpassing even the first. Over 1.6 million people attended performances, and it is reasonable to conclude that the performing arts themselves, presented in critically acclaimed facilities, are, as they should be, the real attraction.

The season opened with a two-week festival of Twentieth-Century and Italian baroque music. This festival of "The Old and the New" included 100 works by 75 composers which were presented in a total of 32 concerts—and over one-third of the events were free. Programming was based to a significant extent upon a survey sent by the Center to 500 music critics, conductors, and publishers, which posed questions as to the most significant contemporary works, the most influential composers, those works which had been undeservedly neglected, and composers whose works would be performed 50 years hence.

In describing "The Old and the New," Irving Lowens of the *Washington Star-News* commented: "This festival, a prototype for others to come, shows that the sum of what goes on in the Kennedy Center's individual auditoriums can add up to considerably more than the arithmetical whole, given the will, the intelligence and the imagination. In a way it is the most significant thing that has yet happened at Kennedy Center. It shows us a national center for the performing arts in operation."





A performance by the American Brass Quintet in the Grand Foyer during the Festival of the Old and the New. (Photograph courtesy of the City News Bureau, Inc.)

In the months that followed, every aspect of the performing arts was represented in an almost overwhelming program which included 119 performances of dance by 15 companies from the United States and abroad; 159 concerts by world-famous orchestras, including 103 by the resident National Symphony Orchestra; 36 performances of 12 different operas; 34 recitals; 41 performances of popular music, folk, jazz and rock; 23 choral concerts; 24 concerts of chamber music; and 538 performances of drama and musical comedy, with works of



Shakespeare, Shaw, Pirandello, Giraudoux, Lorca, Tennessee Williams, Arthur Miller, James Prideaux, and Jean Kerr.

The Bernstein Film Festival, presented in September and featuring films of concerts conducted by Leonard Bernstein, added a new dimension to the Center's programming and demonstrated the adaptability of the Eisenhower Theater. The Theater's film role continued on Sundays during the fall and winter months with a series of presentations by the American Film Institute, (AFI) which operates within the Center while remaining administratively separate. The completion in April of the 224-seat AFI Theater made possible the scheduling of films on a daily basis and thus expanded the variety of art forms regularly available to Center patrons.

Among the responsibilities delegated by Congress to the Center's Board of Trustees is that of providing facilities for civic functions. The fulfillment of this mandate was at no time more clearly demonstrated than during the Presidential Inaugural, 18-20 January, when over 26,000 people attended special functions in virtually every part of the building.

Throughout the year, the Center also played host to 74,000 schoolchildren who attended special concerts sponsored by the wives of Cabinet members and performing arts groups within the city.

The on-going Special Ticket Program, administered by the Friends of the Kennedy Center, enabled over 70,000 people to attend regular performances at half-price. The program, which is available to students, the handicapped, retired people, low-income groups and military personnel in the lower grades, was established to make the Center accessible to all, regardless of economic circumstances.

In an effort to respond more fully to its educational responsibilities, the Center joined with the Education Division of the Department of Health, Education, and Welfare in establishing an Alliance for Arts Education. The objectives of the Alliance are increased participation by students throughout the country in Kennedy Center activities and the establishment of the Center as a focal point for strengthening the arts in education at all levels. Directed by Forbes W. Rogers and with the support of regional and state representatives of the President's Advisory Committee on the Arts and the Friends of the Kennedy Center, the Office of Education and local school officials, the program is designed to increase the Center's national orientation and catalytic potential. In launching the

Alliance, regional planning meetings were held in 10 major cities across the country.

The fifth annual American College Theatre Festival, presented by the Center and the Smithsonian in association with the American National Theatre and Academy, brought 10 of the nation's finest college productions to the Eisenhower Theater during a two-week period in late spring. Produced by the American Theatre Association, the Festival once again enjoyed the sponsorship of AMOCO Oil and American Airlines. In keeping with a tradition established in 1972, the Festival also included performances by a foreign theater group, the Kabuki Apprentices of the National Theatre of Japan, and the Irene Ryan Scholarship Awards.

In response to the enormous tourist interest demonstrated during the first year of operation, Congress voted to transfer responsibility for the Center's memorial function to the National Park Service (NPS) as of 1 July 1972. In addition to carrying out vital security and maintenance functions, the NPS has worked closely with the Friends of the Kennedy Center in providing information services to more than 2.5 million visitors. During its first two years, the Center has witnessed a number of changes, but perhaps none has been more pleasant or welcome than the transformation of its 17-acre site by Park Service landscape personnel.

Although a Bureau of the Smithsonian, the Center is administered separately by a 45-member Board of Trustees, composed of 30 members appointed by the President to 10-year overlapping terms, 9 members ex-officio from pertinent Federal and District of Columbia agencies, 3 members appointed from the Senate and 3 from the House of Representatives. Members of the Board at the close of fiscal year 1973 are as follows:

Roger L. Stevens, *Chairman*

Richard Adler

Ralph E. Becker

Mrs. Donna S. Bradshaw

J. Carter Brown

Mrs. Edward F. Cox

Ralph W. Ellison

Mrs. J. Clifford Folger

Abe Fortas

Representative Peter H. B.

Frelinghuysen

Senator J. William Fulbright

Mrs. George A. Garrett

Leonard H. Goldenson

H. R. Haldeman

Mrs. Rebekah Harkness

Mrs. Paul H. Hatch

Frank N. Ikard

Senator, Edward M. Kennedy

Thomas H. Kuchel

Gustave L. Levy

Mrs. Michael J. Mansfield

Sidney P. Marland, Jr.

Mrs. J. Willard Marriott

Harry C. McPherson, Jr.

George Meany

Robert I. Millonzi

L. Quincy Mumford

Senator Charles H. Percy  
 John Richardson, Jr.  
 S. Dillon Ripley II  
 Representative Teno Roncalio  
 Arthur Schlesinger, Jr.  
 Mrs. Jouett Shouse  
 Mrs. Stephen E. Smith  
 Henry Strong  
 William Hammond Thomas

Representative Frank Thompson, Jr.  
 Benjamin Arthur Trustman  
 Senator, John V. Tunney  
 Jack Valenti  
 Ronald H. Walker  
 Walter E. Washington  
 Lew R. Wasserman  
 Caspar W. Weinberger  
 Mrs. Jack Wrather

The 121-member Advisory Committee on the Arts, appointed by the President, continues as the chief consultative body of the Center. During the past year, the Committee has been particularly active in fund-raising activities and the establishment of the Alliance for Arts Education. The Executive Committee includes:

Mrs. J. Willard Marriott, *Chairman*  
 Robert S. Carter, *Secretary*  
 Vernon B. Stouffer, *Chairman, Finance*  
 Mrs. Donna S. Bradshaw, *Vice-Chairman, Finance*  
 Mrs. Jack Wrather, *Chairman, Public Relations*  
 Harry L. Jackson, *Vice-Chairman, Public Relations*  
 Mrs. Paul A. Clayton, *Chairman, Education and Program*

Mrs. Benjamin C. Evans, Jr., *Vice-Chairman, Education and Program*  
 Mrs. Arnold Schwartz, *Director of Publicity*  
 Mrs. D. Eldredge Jackson, Jr., *North-east Regional Chairman*  
 Harvey B. Cohen, *Southern Regional Chairman*  
 Mrs. W. A. McKenzie, *Western Regional Chairman*  
 John H. Myers, *Midwestern Regional Chairman*

The Friends of the Kennedy Center, established as an auxiliary organization in 1966, increased to 9750 members from all parts of the country. Volunteers of the Friends have given thousands of hours of time and effort, managing and manning the public tours and souvenir stands and providing hospitality and other services to Center operations and functions. Members of the National Council include:

Mrs. Polk Guest, *Chairman*  
 Mrs. Eugene C. Carusi  
 Mrs. Emanuel Cohen  
 Abe Fortas  
 Mrs. George A. Garrett

Mrs. William R. Hyde  
 Mrs. Jed Pearson  
 Henry Strong  
 Stanley Woodward

Regional Chairmen of the Friends are as follows:

Miss Marya Allen, *New England*  
 Mrs. John Braganza, *South Atlantic*  
 Mrs. Charles Engelhard, *Mid-Atlantic*

Mrs. Donald Lewis, *West Coast*  
 Mrs. David Roberts III, *Gulf States*  
 Mrs. Sarkes Tarzian, *Central*



# WOODROW WILSON INTERNATIONAL CENTER FOR SCHOLARS

ALBERT MEISEL, *Acting Director*

THE WOODROW WILSON INTERNATIONAL Center for Scholars was founded in 1968 to be "a living institution expressing the ideals and concerns of Woodrow Wilson . . . symbolizing and strengthening the fruitful relation between the world of learning and the world of public affairs." The general theme of the fellowship program adopted by the Board of Trustees reflects Woodrow Wilson's broad ideals and concerns as a scholar and statesman: emphasis is placed on studies of fundamental political, social, and intellectual issues designed to illuminate man's understanding of critical contemporary and emerging problems and to suggest means of resolving such problems.

The Center reserves a significant portion of its fellowship appointments for scholars pursuing individual studies of their choice which fall within the context of the general theme. In addition to this general fellowship category, however, the trustees have designated specific areas for study, and applications from scholars working in these areas are encouraged in the interests of achieving a certain program coherence and impact and of fostering a useful exchange of ideas and insights among scholars with shared concerns. The areas of special emphasis are international affairs, patterns of growth and the human environment, studies relating to the development of the law of the sea and to international cooperation in the uses of the oceans, and bicentennial studies concerning the period of the enlightenment and the American revolution and the American system of government as it enters its third century.

Since its doors opened in October 1970, the Center has approved 100 fellowship and 34 guest scholar appointments, approximately half to scholars from the United States and half to scholars from 24 other countries. As the program is

continuous and year-round, and appointments vary from a few months to a year or more, its community is characterized by both continuity and change, with departures and arrivals usually numbering two or three each month. The men and women participating in the Center programs have included scholars in the social sciences, humanities, and natural sciences as well as persons drawn from careers in law, diplomacy, the ministry, journalism, governments, international organizations, and other professions and occupations.

In addition to the support of research and writing, and in response to its charter obligation to "strengthen the fruitful relation between the world of learning and the world of public affairs," the Center and Center scholars have sponsored and participated in a wide-ranging series of conferences, seminars, and symposia involving large numbers of persons from government, academe, and the community at large.

## Appendix 1

### MEMBERS OF THE SMITHSONIAN COUNCIL

30 June 1973

- DR. ROGER ABRAHAMS. Director, African and Afro-American Research Institute, The University of Texas, Austin.
- MR. H. HARVARD ARNASON. New York City (Honorary Member).
- DR. MURIEL M. BERMAN. Allentown, Pennsylvania (Honorary Member).
- DR. HERMAN R. BRANSON. President, Lincoln University, Pennsylvania.
- MRS. CAMILLE W. COOK. Assistant Dean, University of Alabama School of Law, Alabama.
- PROFESSOR CARL W. CONDIT. Center for Urban Affairs, Northwestern University, Evanston, Illinois.
- PROFESSOR FRED R. EGGAN. Department of Anthropology, University of Chicago, Illinois.
- PROFESSOR DONALD S. FARNER. Seattle, Washington (Honorary Member).
- PROFESSOR ANTHONY N.H. GARVAN. Philadelphia, Pennsylvania (Honorary Member).
- DR. MURRAY GELL-MANN. Robert Andrews Millikan Professor of Theoretical Physics, California Institute of Technology, Pasadena.
- DR. FRANK B. GOLLEY. Executive Director, Institute of Ecology, University of Georgia, Athens, Georgia.
- DR. PHILIP HANDLER. President, National Academy of Sciences, Washington, D.C.
- DR. DAVID HAWKINS. Director, Mountain View Center for Environmental Education, University of Colorado.
- PROFESSOR JAN LA RUE. Department of Music, Graduate School of Arts and Sciences, New York University, New York City.
- DR. JAMES L. LIVERMAN. Associate Director, Biology Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.
- DR. CLIFFORD L. LORD. Hempstead, New York (Honorary Member).
- DR. GILES W. MEAD. Director, Los Angeles County Museum of Natural History, Los Angeles, California.
- PROFESSOR CHARLES D. MICHENER. Lawrence, Kansas (Honorary Member).
- DR. PETER M. MILLMAN. Ontario, Canada (Honorary Member).
- PROFESSOR NORMAN HOLMES PEARSON. Department of English and American Studies, Yale University.
- DR. GORDON N. RAY. President, John Simon Guggenheim Memorial Foundation, New York City.
- MR. PHILIP C. RITTERBUSH. Chairman, ORGANIZATION: RESPONSE, Washington, D.C.
- MR. HAROLD ROSENBERG. Art Critic, *New Yorker Magazine*.
- MR. GEORGE C. SEYBOLT. President, Museum of Fine Arts, Boston, Massachusetts (Honorary Member).



- MR. ANDRE SCHIFFRIN. Managing Director, Pantheon Books, New York.
- PROFESSOR CYRIL STANLEY SMITH. Institute Professor, Massachusetts Institute of Technology.
- PROFESSOR JOHN D. SPIKES. Salt Lake City, Utah (Honorary Member).
- PROFESSOR STEPHEN E. TOULMIN. Provost, Crown College, University of California.
- MRS. BARBARA W. TUCHMAN. Author, New York City.
- DR. WILLIAM VON ARX. Senior Scientist, Woods Hole Oceanographic Institution, Massachusetts.
- PROFESSOR WARREN H. WAGNER, JR. Ann Arbor, Michigan (Honorary Member).
- DR. RAINER ZANGERL. Chairman, Department of Geology, Field Museum of Natural History, Chicago, Illinois.

## Appendix 2

### SMITHSONIAN ASSOCIATES MEMBERSHIP, 1972-1973

#### Contributing Memberships

##### SPONSOR MEMBER

(\$10,000 and up)

Mr. Henry J. Heinz II

##### PATRON MEMBERS

(\$5000 and up)

Mr. William Blackie

Mr. Paul L. Davies

##### FOUNDER MEMBERS

(\$1000 and up)

Mrs. Charles Engelhard

Mr. Donald A. Petrie

Mr. Merritt Kirk Ruddock

Mr. Joseph A. Thomas

##### SUSTAINING MEMBERS

(\$500 and up)

Mrs. Paul Barham

Mrs. Katherine H. Benedict

Mr. and Mrs. E. H. Clocker

Miss Mary Croyle

Dr. Jo Ann Deatherage

Mrs. Thomas Dudley Joeck

Mrs. Eugene O'Dunne

Miss Eleanor L. Perry

Mr. John Shedd Reed

Mr. and Mrs. Harry N. Stevens

Mrs. Harry G. Wilson

## DONOR (FORMERLY CONTRIBUTING) MEMBERS

(\$100 and up)

Mrs. Howard Ahmanson	Mrs. Pricilla Meek Christy
Mrs. Eben Alexander, Jr.	Mrs. Henry Cobb
Miss Isabel Allen	Mrs. Wilma U. Coggins
Mrs. Michael Alteri	Mrs. B. S. Cole
Mrs. G. M. Anderson	Mr. Henry E. Coleman, Jr.
Miss Helen M. Anderson	Mr. Richard P. Cooley
Miss Maja C. Anderson	Mrs. Laetitia K. Coolidge
Mr. Arthur R. Armstrong	Mr. Peter Covel
Mr. and Mrs. J. Y. Arnold, Jr.	Mr. Frederick C. Crawford
Mr. and Mrs. Leonard Lee Bacon	Miss Carol Culton
Miss Lois Bacon	The Honorable and Mrs. Hugh S.
Mrs. Robert Low Bacon	Cumming, Jr.
Mrs. Arthur B. Baer	Mrs. Deborah L. Currier
Mr. Richard Brown Baker	Miss Viola E. Cureton
Miss Amy Ballard	Mrs. McCullough Darlington
Mrs. George E. Bates	Mrs. Allan Dawson
Mr. and Mrs. Walter Beck	Mr. and Mrs. Richmond A. Day
Mr. and Mrs. Roger K. Becker	Mr. Kenneth Dearolf
Mr. and Mrs. Lawrence A. Benenson	Dr. Lewis Hilliard Dennis
Mrs. Suzanne F. Bershad	Mrs. Katherine P. Deutsch
Dr. and Mrs. James F. Bing	General Jacob L. Devers
Miss Fridl M. Blumenthal	Mr. and Mrs. Frederick C. Dirks
Miss Elisabeth H. Boeker	Mr. and Mrs. Theodore Dominick
Mr. and Mrs. J. B. Bogan	Miss Julia Dorish
Mr. Maxwell Brace	Miss Mary Dorsey
Mr. J. Bruce Bredin	Captain and Mrs. Robert F. Doss
Mrs. Edwin T. Breed	Mrs. Rockwell Drake
Mr. Carl A. Bretz	Mr. and Mrs. Charles Eames
Mrs. George E. Brewer	Mrs. Samuel N. Efron
Mr. Lloyd A. Breyer	Miss Ann E. Erdman
Mr. and Mrs. Winthrop G. Brown	Miss Selma Etter
Mrs. Evelyn M. Bryant	Mrs. James Faircloth
Mr. and Mrs. C. Emery Buffum	Mr. James E. Farrell
Mrs. Robert Buka	Mr. and Mrs. F. M. Feffer
Mr. and Mrs. John Lee Bunce	Miss Judith R. Fetter
Mr. I. Townsend Burden III	Mrs. Jeanette Findlay
The Honorable and Mrs. William A.	Mrs. Richard B. Finn
M. Burden	Mrs. John Gardiner Flint
Dr. Catherine A. Burham	The Honorable and Mrs. Edward H.
Mr. and Mrs. Jackson Burke	Foley
Mr. and Mrs. Edward Burling, Jr.	Mrs. Sarah Ford
Mrs. James MacGregor Byrne	Mrs. Trevor Ford
Mr. and Mrs. Clarence Cade	Mr. Richard B. Frachman
Mr. Carter Cafritz	Mrs. Margaret Mary Frowe
Dr. and Mrs. George Carter	Mr. and Mrs. R. W. Fuller III
Miss Alice C. Cartwright	Mr. and Mrs. Charles Gamper
Mrs. James B. Cartwright	Mr. and Mrs. Arthur W. Gardner
Mr. and Mrs. David G. Chapman	Dr. and Mrs. Stanton Garfield



- Mr. T. Jack Gary, Jr.  
 Mr. W. E. Gathright  
 Mr. and Mrs. Daniel Gaudin  
 Miss Edith C. Gibney  
 Mr. and Mrs. O. Rundle Gilbert  
 Mr. and Mrs. T. K. Glennan  
 Colonel and Mrs. Julius Goldstein  
 Mr. Paul J. Good  
 Mrs. J. L. Goodwin  
 Miss Marion Gorrill  
 Mr. Alan Gowans  
 Mrs. Katharine Graham  
 Dr. Sheila H. Gray  
 Dr. and Mrs. Benjamin Greenberg  
 Dr. and Mrs. John N. Grekin  
 Mr. and Mrs. Harry Griffen  
 Miss Keating Griffiss  
 Miss Virginia H. Groomes  
 Miss Margaret Gurney  
 Mr. Tom Hahs  
 Mrs. Harold H. Hallock  
 Mr. and Mrs. Henry R. Hallowell  
 Mr. Courtney C. Hamilton, Jr.  
 Miss Morella R. Hansen  
 Mr. and Mrs. F. Barton Harvey  
 Mrs. Jack Hause  
 Mr. and Mrs. G. Frederick Hawkins  
 Mrs. Patrick Healy  
 Mrs. Robert Heiderer  
 Mrs. Stephen W. Heller  
 Mr. and Mrs. Frank C. Henderson  
 Mrs. Kenner F. Hertford  
 Mrs. Walter K. Higgins  
 Mr. Walter J. Hodges  
 Mrs. Martin E. Hogan, Jr.  
 Mr. Pendleton Hogan  
 Mr. and Mrs. Wallace F. Holladay  
 Mrs. Jane M. Holstein  
 Mr. Arthur A. Houghton, Jr.  
 Miss Elisabeth Houghton  
 Mrs. Oscar B. Huffman  
 Mrs. F. R. Humphris  
 Miss L. Georgia Hundley  
 Mrs. Lucy Hutterer  
 The Honorable and Mrs. Frank N. Ikard  
 Mrs. Philip S. Isaacs  
 Mr. and Mrs. H. W. Janson  
 Mrs. Ida Jasan  
 Mr. and Mrs. Ray C. Johnson, Jr.  
 Mr. and Mrs. Jacob Kainen  
 Miss Helen S. Kainen  
 Mr. and Mrs. George E. Keeler  
 Mr. Walter Kidd  
 Mrs. Randolph Kidder  
 Mrs. O. W. Kirkpatrick  
 Mrs. Catherine Klenert  
 Mrs. L. B. Knight  
 Miss Ann Brewer Knox  
 Mr. and Mrs. David Lloyd Kreeger  
 Mr. and Mrs. Anthony A. Lapham  
 Mrs. Ruth K. Larcom  
 Mrs. Mortimer Lebowitz  
 Miss Mary Nelson Lee  
 Miss Anna T. Lehlbach  
 Mr. John Leonard  
 Mrs. A. Morris Levy  
 Dr. and Mrs. Merrill D. Lipsey  
 Mr. J. Victor Loewi  
 Mrs. F. X. Lopez  
 Mrs. Barbara Loudon  
 Mr. and Mrs. William T. Lusk  
 Mrs. Sherli W. Macht  
 Mrs. J. D. MacLauren  
 Mr. Joe D. Manous  
 The Honorable and Mrs. Leonard H. Marks  
 Mr. and Mrs. Melvin E. Mather  
 Miss Grace E. Mattis  
 Mrs. Beatrice M. Mattison  
 Miss Eleanor Mawhinney  
 Miss Julia A. Maxwell  
 Mrs. David Mayer  
 Mr. and Mrs. Devereaux F. McC-latchey  
 The Honorable and Mrs. George C. McGhee  
 Mr. and Mrs. John H. McLaren  
 Miss Joanne McLellan  
 Mr. Frederick A. Melhado  
 Mr. and Mrs. Elwin A. Miller  
 Mrs. Joseph C. Miller  
 Miss Louise C. Millikan  
 Mr. Roger Milliken  
 Miss Eleanor S. Mohr  
 Mrs. Margaret E. Moore  
 Mrs. Elizabeth Montgomery  
 Mrs. Louise E. Mora  
 Mrs. Ann Moreton  
 Mr. and Mrs. Carl J. Mulert, Jr.  
 Mr. and Mrs. J. Duncan Munro  
 Mr. and Mrs. Clarence W. Nichols  
 Mr. and Mrs. Newton S. Nobel  
 Miss Lorene E. Norbeck

Mr. Gerson Nordlinger, Jr.	Mrs. William D. Suggs
Mr. and Mrs. Robert Nourse	Mrs. Mary S. Sutcliffe
Mrs. Janet B. Nunnally	Mrs. Frederick Suydam
Miss Mollie Orshansky	Mrs. Edward C. Sweeney
Miss Eugenia Ostopchuk	Dr. W. B. Swift
Mrs. Leonid Ourusoff	Mrs. Martha Frick Symington
Mrs. Paul O. Parramore	Mr. and Mrs. Alfred E. Tarr
The Honorable and Mrs. Jefferson Patterson	Dr. and Mrs. Maurice B. Tobin
Professor Norman H. Pearson	Mr. and Mrs. David G. Townsend
Mr. and Mrs. Edmund E. Pendleton, Jr.	Mrs. R. L. Tracy
Mr. and Mrs. Charles Emory Phillips	Mr. and Mrs. A. Buel Trowbridge
Miss Joane M. Picha	Mr. and Mrs. William Truesdale
Miss Katherine Anne Porter	Mr. and Mrs. Roy C. Turney
Miss Jacqueline Preis	Mrs. James R. Ullman
Miss Evelyn Puffenberger	Mrs. Thomas G. Vandever
Dr. and Mrs. Ernest Rafey	Mr. G. Duane Vieth
Miss Ruth Raiguel	Mr. and Mrs. Julius Wadsworth
Miss Margaret Rathbone	Mrs. Alice L. Walker
Mr. and Mrs. W. A. Rawlins	Mrs. Clyde Ward
Miss Harriet D. Richmond	Mrs. Elmer E. M. Warner
Mr. James H. Ripley	Dr. W. L. Waskow
Mrs. William L. Ritchie	Mrs. C. Law Watkins
Mrs. Charlotte B. Rose	Miss Dorothy P. Watts
Mrs. Howard F. Ross	Miss Peggy A. Watts
Dr. and Mrs. David Sacks	Mrs. Velma P. Watts
Mr. and Mrs. Bert Sager	The Honorable and Mrs. James E. Webb
Mr. William R. Salomon	Mr. Jervis B. Webb
Mr. and Mrs. Bernard Salzberg	Mr. and Mrs. William S. Weedon
Miss Isabelle R. Schaffner	Miss Hilde Werthauer
Miss Zelda Schiffman	Mr. and Mrs. Harold I. Westcott
Mr. and Mrs. James M. Schopf	Mr. and Mrs. Stanley Westreich
Mr. William Schultesis	Mr. and Mrs. Ben White
Miss Frances Scudder	Mrs. Robert A. Williams
Mr. Riley M. Sharp	Miss Katherine H. Willis
Miss Katherine Shilling	Mr. and Mrs. Luke W. Wilson
Mrs. John Farr Simmons	Mrs. Richard T. Wilson, Jr.
Mr. and Mrs. Montgomery M. Smith	Mrs. Win E. Wilson
Mrs. Paul H. Speaker	Mrs. Alice Wolfsohn
Mrs. Charles Stelle	Mrs. P. M. Woods
Mr. and Mrs. Harry N. Stevens	Mr. Russell M. Woods
Dr. and Mrs. T. Dale Stewart	Mr. Thomas O. Ziebold

## SUPPORTING MEMBERS

(\$50 and up)

The Reverend and Mrs. F. Everett Abbott	Mr. and Mrs. Stanley N. Allan
Mr. and Mrs. Robert R. Aitkin	Mr. and Mrs. David R. Anderson
	Mr. and Mrs. John W. Auchincloss

Mrs. Carol P. Banks  
 Mr. and Mrs. Bernard O. Bent  
 The Honorable Frances P. Bolton  
 The Honorable and Mrs. Philip W. Bonsal  
 Mr. and Mrs. William Bowman  
 Mrs. Eugenie Rowe Bradford  
 Mrs. Royall Brown  
 Mr. and Mrs. Frederick B. Bryant  
 Mr. Alvin J. Buchanan, Jr.  
 The Honorable and Mrs. Wiley T. Buchanan, Jr.  
 Mrs. Linda C. Burgess  
 Mrs. Esther S. Burstein  
 Dr. and Mrs. Charles M. Cabaniss  
 Mr. Terence L. Cahill  
 Mr. and Mrs. Dan P. Caulkins  
 Mr. and Mrs. James G. Chandler  
 Mr. and Mrs. Timothy W. Childs  
 Mr. Robert M. Comly  
 Mr. and Mrs. James A. Conley  
 Mrs. Chester Dale  
 Mr. and Mrs. Michael F. Deevy  
 Mr. and Mrs. Ewen C. Dingwall  
 Mr. and Mrs. Allen T. Dittmann  
 Mr. and Mrs. Robert B. Eichholz  
 Mr. and Mrs. Lionel Epstein  
 Mrs. Ralph Falk  
 Dr. and Mrs. A. L. Fjordbotten  
 Mrs. Julius Fleischmann  
 Mrs. Maury Forman  
 Mr. and Mrs. Arthur H. Fribourg  
 Mrs. Edwin F. Fullinwider  
 Mr. John W. Galston  
 Miss Anne H. Goldfinch  
 Miss Donna M. Graif  
 Mr. and Mrs. Ernest C. Gray  
 Mr. and Mrs. Robert Gray, Jr.  
 Mr. and Mrs. Richard Hagemeyer  
 Mrs. F. J. Hart  
 Mr. and Mrs. Tom Hart  
 Mr. and Mrs. Warren Hastings  
 Dr. and Mrs. L. M. Hellman  
 Mr. Frederick R. Henley  
 Mr. and Mrs. James Hughes  
 Mr. and Mrs. Claude Hurd  
 Mr. and Mrs. James D. Hurd  
 Dr. and Mrs. Ralph T. Jans  
 Mrs. Robert C. Johnston  
 Mr. John Marshall Jones  
 Mrs. George C. Keiser  
 Miss E. M. Kemer

Dr. Herbert H. Kersten  
 Mr. and Mrs. J. K. Knee  
 Mr. Bogumil Kosciesza  
 Miss S. Victoria Krusiewski  
 Mrs. Gertrude Leach  
 Mr. Howard R. Leederman  
 Mr. Andrew Leonard  
 Mr. Paul Lepage  
 Mr. and Mrs. Maxwell B. Lewis  
 Mr. William C. Lewis  
 Mrs. Patric G. Link  
 The Honorable and Mrs. Sol M. Linowitz  
 Mrs. Demarest Lloyd  
 Mr. and Mrs. Stephen Low  
 Mr. Harry Lunn  
 Dr. and Mrs. E. Stuart Lyddane  
 Mrs. John F. Markham  
 Dr. and Mrs. Francis Mayle, Jr.  
 Mr. and Mrs. Richard R. McLaughlin  
 Mrs. R. B. Menapace  
 Mrs. Edward P. Moore  
 Mr. and Mrs. Robert E. Newly  
 Mr. and Mrs. J. Lloyd Niles  
 Mr. and Mrs. Carl F. Norden and Family  
 Mr. Robert O'Brien  
 Mr. Jerry O'Regan  
 Mr. Harry A. Paynter  
 Mr. William A. Paznekas  
 Mr. and Mrs. Arthur W. Pence, Jr.  
 Ms Jo Perrill  
 Captain and Mrs. Charles Phillips  
 Mrs. Frank S. Phillips  
 Mr. Joseph B. Phillips  
 Mrs. William Pierce  
 Dr. and Mrs. Jorold J. Principato  
 Dr. and Mrs. Ernest G. Rafey  
 Mr. and Mrs. Howard W. Reid  
 Dr. Michael J. Reilly  
 Mrs. David Roberts III  
 Mrs. John Barry Ryan  
 Mr. David Sapadin  
 Mr. Michael F. Sawyer  
 Mrs. Francis B. Sayre, Jr.  
 Mr. and Mrs. James H. Scheuer  
 Miss Josephine A. Sesi  
 Mr. and Mrs. David R. Skinner  
 Mr. and Mrs. Benjamin Slavin  
 Colonel and Mrs. C. Haskell Small  
 The Honorable and Mrs. Gerard C. Smith



Mr. and Mrs. Lamar A. Smith  
 Mr. and Mrs. Larry Snodgrass  
 Commander and Mrs. Lane Spencer  
 Mr. and Mrs. Richard L. Sugarman  
 Mr. David A. Sutherland  
 Mrs. Joseph P. Sweeney  
 Mrs. Mary Davidson Swift  
 Mr. and Mrs. Frank B. Thomson  
 Mr. Robert Truland  
 Mr. and Mrs. James H. Tuvin  
 Dr. and Mrs. Philip Varner

Mr. and Mrs. Richard Wainwright  
 Mr. and Mrs. Robert B. Watson  
 Mr. and Mrs. George Wheeler  
 Mr. and Mrs. William B. White  
 Mr. and Mrs. J. H. Wilkinson, Jr.  
 Mr. and Mrs. Anthony T. Wilson  
 The Honorable and Mrs. Edward F. Wilson  
 Mrs. Leslie H. Wyman  
 Mr. and Mrs. James R. Zuckerman

### LIFE MEMBERS

The Institution gratefully acknowledges the generosity and enthusiasm of the following individuals who became Life Members during the years 1965 through 1971, when life memberships in Smithsonian Associates were available.

### FOUNDER MEMBERS

(\$1000 and up)

Mr. Irwin Belk  
 The Honorable and Mrs. David K. E. Bruce  
 Mrs. Morris Cafritz  
 The Honorable Douglas Dillon  
 Mr. Charles E. Eckles

The Honorable and Mrs. John Clifford Folger  
 Mr. Cornelius Van S. Roosevelt  
 Mr. Thomas J. Watson, Jr.  
 Mr. P. A. B. Widener  
 Mr. and Mrs. Sidney S. Zlotnick

### SUSTAINING MEMBERS

(\$500 and up)

Mrs. Anna Bing Arnold  
 Mrs. Theodore Babbitt  
 Mr. Joel Barlow  
 Mr. and Mrs. Richard Barnes  
 Mr. William R. Biggs  
 Mr. George A. Binney  
 Mr. and Mrs. Joseph D. Blatt  
 Miss Fay Boyle  
 Mrs. L. Roosevelt Bramwell  
 Mr. A. Marvin Braverman  
 Mr. and Mrs. John Nicholas Brown  
 Mr. Bertram F. Brummer  
 Mrs. Leon Campbell, Jr.  
 Mrs. Leonard Carmichael  
 Dr. Rita Chow  
 Clarke and Rapuano Foundation  
 (Mr. Gilmore D. Clarke)

Mrs. Frances A. Davila  
 Mr. Newell W. Ellison  
 Mr. and Mrs. Alfred U. Elser, Jr.  
 Mr. and Mrs. Richard S. Friedman  
 Mr. Richard E. Fuller  
 Mr. and Mrs. Hy Garfinkel  
 Mr. George A. Garret  
 Mr. Carl S. Gewirz  
 Mr. and Mrs. Crawford Greenewalt  
 Mr. and Mrs. Gilbert C. Greenway  
 Mr. William H. Greer, Jr.  
 Mr. Melville B. Grosvenor  
 Mr. and Mrs. Homer Gudelsky  
 Mr. Gilbert Hahn  
 Mr. Laurence Harrison  
 Mr. and Mrs. Joseph Hirshhorn  
 Mr. and Mrs. Christian Hohenlohe

Mr. Philip Johnson  
 Miss Brenda Kuhn  
 Mr. Harold F. Linder  
 Colonel and Mrs. Leon Mandel  
 Mr. and Mrs. J. Willard Marriott  
 The Honorable William McC. Martin,  
 Jr.  
 Lieutenant Commander and Mrs. P. J.  
 Maveety  
 Mr. and Mrs. Paul Mellon  
 Miss Katherine A. A. Murphy  
 Neuberger Foundation Incorporated  
 (Roy R. and Marie S. Neuberger)  
 Duke of Northumberland  
 Dr. and Mrs. Melvin M. Payne  
 Miss Lucy M. Pollio  
 Mrs. Marjorie Merriweather Post  
 Mr. and Mrs. Peter Powers

Miss Elsie Howland Quinby  
 Dr. and Mrs. S. Dillon Ripley  
 Mr. and Mrs. Seymour J. Rubin  
 Mr. H. C. Seherr-Thoss  
 Mrs. Jouett Shouse  
 Dr. and Mrs. Carl Swan Shultz  
 Mr. and Mrs. Robert H. Smith  
 Mr. Robert T. Smith  
 Miss Sally Sweetland  
 Mr. and Mrs. Bertrand L. Taylor III  
 Mrs. Clark W. Thompson  
 Mrs. Carll Tucker  
 Mr. Alexander O. Vietor  
 Mr. and Mrs. John W. Warner  
 Dr. Alexander Wetmore  
 Mr. and Mrs. W. Bradley Willard  
 Mrs. Rose Saul Zalles

### Corporate Memberships

The Smithsonian Institution thanks the following business organizations for their understanding and generous support of the Institution's research and education programs through membership in the Smithsonian Associates.

American Metal Climax Foundation,  
 Inc.  
 Arthur Andersen and Company  
 AVCO Corporation  
 Badger Meter, Inc.  
 Burlington Industries, Inc.  
 Caterpillar Tractor Co.  
 Celanese Corporation  
 The Coca Cola Company  
 Dana Corporation  
 Dart Industries Inc.  
 Deere & Company  
 El Paso Natural Gas Company  
 The First National Bank of Miami  
 The B. F. Goodrich Company  
 International Business Machines Cor-  
 poration  
 International Telephone and Tele-  
 graph Corporation

S. S. Kresge Company  
 The Magnavox Company  
 Melville Shoe Corporation  
 Mobil Oil Corporation  
 Philip Morris Incorporated  
 National Bank of Detroit  
 Northwest Industries, Inc.  
 Olin Corporation  
 PACCAR Inc.  
 R. J. Reynolds Industries, Inc.  
 J. K. Smit and Sons, Inc.  
 Levi Strauss & Co.  
 TRW Inc.  
 Texas Instruments Incorporated  
 Transcontinental Gas Pipe Line Cor-  
 poration  
 Hiram Walker & Sons Inc.  
 Winn-Dixie Stores, Inc.

### National Board

This body was created in October 1971 to assist the Institution in the pursuit of certain of its aims for the decade of the 1970s, particularly in the development of its relations with industry. While the Institution hopes to advance its goals in public education and environmental studies through increased private support, it seeks, in turn, to serve the educational and community interests of its Corporate Members. We are grateful for the energy and concern shown by the members of the Board.

Lewis A. Lapham, *Chairman*

Harry Hood Bassett

William Blackie

John W. Brooks

Richard P. Cooley

Joseph F. Cullman 3rd

Harry B. Cunningham

Paul L. Davies

Leonard K. Firestone

Charles T. Fisher, III

G. Keith Funston

Alfred C. Glassell, Jr.

Mrs. David L. Guyer

Ben W. Heineman

Henry J. Heinz II

William A. Hewitt

Frank Y. Larkin

The Honorable George C. McGhee

Mrs. Robert S. McNamara

Ruben F. Mettler

Roger Milliken

Charles M. Pigott

Mrs. Malcolm Price

Francis C. Rooney, Jr.

Merritt Kirk Ruddock

Thomas J. Watson, Jr.

James O. Wright



## Appendix 3

### ACADEMIC APPOINTMENTS, 1972-1973

#### Smithsonian Postdoctoral Fellows

Smithsonian Fellows pursue research problems in Smithsonian facilities and collections in collaboration with professional staff members. Asterisks indicate Fellows whose research was supported through a grant for American Indian Studies awarded by the National Endowment for the Humanities for tenure at the Smithsonian Institution.

##### *Program in American and Cultural History*

JAMES E. BRITTAIN. A biography of Ernst F. W. Alexanderson, with Dr. Otto Mayr and Mr. Elliot N. Sivowitch, National Museum of History and Technology, from July 1972 to July 1973.

EUGENE J. ENRICO. Edition and performance of 18th-century chamber music with instruments from the Smithsonian collection, with Mr. James M. Weaver, National Museum of History and Technology, from January 1973 to September 1973.

HELEN L. HOROWITZ. American zoos as cultural institutions, with Dr. Lillian B. Miller, National Portrait Gallery, from September 1972 to January 1974.

NEAL SALISBURY. A study of the history of the Algonquins of southern New England and their relations with the Puritans in the 17th century, with Dr. Wilcomb E. Washburn, Office of American Studies, from September 1972 to September 1973.

ALLISON W. SAVILLE. American submarine technological development, 1915-1942, with Dr. Philip K. Lundeborg, National Museum of History and Technology, from September 1972 to March 1973.

##### *Program in Anthropology*

CHRISTIAN FEEST. Ethnohistory of Indians of Tidewater Virginia, with Dr. William C. Sturtevant, National Museum of Natural History, from December 1972 to December 1973.

MICHAEL J. FINNEGAN. Nonmetric variation in the human infra-cranial skeleton, with Dr. Donald J. Ortner, National Museum of Natural History, from August 1972 to August 1973.

\*MARGOT P. LIBERTY. Changing Indian law in the Great Plains, with Dr. John C. Ewers, National Museum of Natural History, from December 1972 to September 1973.

OWEN S. RYE. Traditional pottery of West Pakistan, with Dr. Clifford Evans, National Museum of Natural History, from July 1972 to July 1973.

- \* PETER STONE. Historical background of the fourteen Tlingit sub-tribes, with Dr. William C. Sturtevant, National Museum of Natural History from October 1972 to July 1973.

*Program in Environmental Sciences*

- RICHARD C. HONEYCUTT. A developmental approach to photosystem II photosynthesis, with Dr. Maurice M. Maigulies, Radiation Biology Laboratory, from July 1972 to July 1973.
- MICHAEL R. MURPHY. Comparative study of the behavior of three species of hamsters, with Dr. John F. Eisenberg, National Zoological Park, from July 1972 to July 1973.

*Program in Evolutionary and Systematic Biology*

- ANNIE V. J. DHONDT. Evolution, paleoecology, functional morphology, and biostratigraphy of Atlantic realm Cretaceous bivalves, with Dr. Erle G. Kauffman, National Museum of Natural History, from October 1972 to October 1973.
- JERZY A. FEDEROWSKI. Permian Tetracoralla of the Glass Mountains, Texas, with Dr. William A. Oliver, National Museum of Natural History, from August 1972 to August 1973.
- JEFFERY W. FROELICH. A systematic evaluation of *Ateles*, with Dr. Richard W. Thorington, National Museum of Natural History, from September 1972 to September 1973.
- JIRÍ KŘÍŽ. Muscle systems of recent bivalves showing morphologic relations to Paleozoic bivalves, with Dr. Erle G. Kauffman, National Museum of Natural History, from September 1972 to September 1973.
- FRANK K. MCKINNEY. Zoöcial packing models, budding patterns, and initial colony development in the order Trepotomata, with Dr. Richard S. Boardman, National Museum of Natural History, from September 1972 to September 1973.
- MINORU NAKANISHI. A revision of lichens of southern Asia, with Dr. Mason E. Hale, National Museum of Natural History, from September 1972 to September 1973.
- DIAN J. TEIGLER. Ultrastructure of trilobite cuticle, with Dr. Kenneth M. Towe, National Museum of Natural History, from September 1972 to September 1973.

*Program in the History of Art*

- DAVID SELLIN. Paris and the Philadelphia school of painting and sculpture, 1855-1876, with Dr. Lois M. Fink, National Collection of Fine Arts, from November 1972 to November 1973.

*Program in the History of Science and Technology*

- SHARON L. GIBBS. Computer techniques applied to the study of antique astrolabes, with Mr. Silvio A. Bedini and Dr. Uta C. Merzbach, National Museum of History and Technology, from September 1972 to September 1973.

*Program in the Physical Sciences*

- MARIE E. HALLAM. Theoretical investigation of lunar thermal history with special emphasis on the accurate determination of the lunar formational interval, with Dr. John A. Wood, Smithsonian Astrophysical Observatory, from September 1972 to September 1973.
- ROBERT L. KURUCZ. Research for a computer program for calculating model stellar atmospheres, with Dr. Eugene H. Avrett, Smithsonian Astrophysical Observatory, from July 1972 to July 1973.
- ROLAND C. ROUSE. The crystal chemistry of the Terlinguaite-Eglestonite group, with Dr. Joel E. Arem, National Museum of Natural History, from July 1972 to July 1973.
- NICOLAAS A. RUPKE. Slumping, sliding, and sediment dispersal in Recent marine flyschoid basins and their relation to the milieu of deposition, with Dr. Daniel J. Stanley, National Museum of Natural History, from July 1972 to July 1973.

*Program in Tropical Biology*

- LAWRENCE ABELE. Species equilibrium number in shallow water marine habitats, with Dr. Martin H. Moynihan, Smithsonian Tropical Research Institute, from September 1972 to September 1973.
- PAUL J. CAMPANELLA. Evolution and diversity of mating strategies in the New World tropical odonates, with Dr. Martin H. Moynihan, Smithsonian Tropical Research Institute, from September 1972 to September 1973.
- YÄEL D. LUBIN. Behavior and ecology of web-building spiders in a tropical monsoon forest, with Dr. Michael H. Robinson, Smithsonian Tropical Research Institute, from September 1972 to September 1973.
- ANTHONY J. RANERE. Early human adaptation to the American tropics and the origins of tropical agricultural systems, with Dr. Martin H. Moynihan, Smithsonian Tropical Research Institute, from July 1972 to July 1973.
- JAMES N. M. SMITH. Experimental and observational studies on the survival value of flocking in birds, with Dr. Martin H. Moynihan, Smithsonian Tropical Research Institute, from October 1972 to October 1973.

## Smithsonian Predoctoral Fellows

*Program in American and Cultural History*

- PATRICK H. BUTLER. The implications of death in Colonial Chesapeake society, with Dr. Wilcomb E. Washburn, Office of American Studies, from June 1972 to June 1973.

*Program in Anthropology*

- ROBERT J. BIGART. An ethnohistory of the Salish Flathead Indians of Montana, with Dr. John C. Ewers, from September 1972 to September 1973.
- JOHN E. YELLEN. A study of selected aspects of hunter-gatherer culture past and present in western Ngamiland, Botswana, with Dr. Clifford Evans, from October 1972 to October 1973.



*Program in Environmental Sciences*

BONNIE B. DALZELL. Horn morphology in ungulates in relation to the intraspecific and extraspecific weapon problem, with Dr. Nicholas Hotton, National Museum of Natural History, from September 1972 to September 1973.

EDWARD C. DEFABO. An action spectrum determination of the biosynthesis of carotenoid in *Neurospora crassa* as determined by *in vivo* spectrophotometry, with Dr. Walter A. Shropshire, Radiation Biology Laboratory, from October 1972 to October 1973.

VERNA R. LAWSON. Complex phytochrome responses in coleoptiles, with Dr. Robert L. Weintraub, Radiation Biology Laboratory, from April 1972 to April 1973.

*Program in Evolutionary and Systematic Biology*

DAVID D. GILLETTE. A reevaluation of North American Glyptodonts, with Dr. Clayton E. Ray, National Museum of Natural History, from September 1972 to September 1973.

JOHN H. HANLEY. Paleoecology of molluscs of the Green River and Wasatch formations, with Dr. Erle G. Kauffman, National Museum of Natural History, from September 1972 to September 1973.

JOSHUA LAERM. The evolution and functional analysis of the vertebral column in fossil amphibia, with Dr. Nicholas Hotton, National Museum of Natural History, from July 1972 to July 1973.

*Program in the History of Art*

SUSAN HOBBS. The 'Genteel Tradition' in late 19th-century painting and its counterpart in popular magazine illustration, with Dr. Joshua C. Taylor, National Collection of Fine Arts, from September 1972 to September 1973.

JUDITH O'SULLIVAN. Winsor McCay and aspects of American art nouveau, with Mrs. Janet L. Flint, National Collection of Fine Arts, from September 1972 to September 1973.

ROBERTA K. TARBELL. Catalogue raisonné of the carved sculpture of William Zorach, with Dr. Joshua C. Taylor, National Collection of Fine Arts, from July 1972 to July 1973.

*Program in the History of Science and Technology*

SAROJ K. GHOSE. The advent of the electric telegraph in India, with Dr. Bernard S. Finn, National Museum of History and Technology, from July 1972 to July 1973.

JOHN DOUGLAS HELMS. The influence of the boll weevil in southern agriculture, with Dr. Jon B. Eklund, National Museum of History and Technology, from September 1972 to September 1973.

ARTHUR L. NORBERG. Some aspects of the career of Simon Newcomb, a 19th-century American astronomer, with Dr. Nathan Reingold, The Joseph Henry Papers, from September 1972 to September 1973.

*Program in Physical Sciences*

WILLIAM R. FORMAN. Study of data from the X-ray satellite, UHURU, with

optical observations of these sources, with Dr. Rudolph E. Schild, Smithsonian Astrophysical Observatory, from July 1972 to July 1973.

JEAN W. GOAD. A spectroscopic study of the dynamics in the central bulge of M81, with Dr. Rudolph E. Schild, Smithsonian Astrophysical Observatory, from October 1972 to July 1973.

RICHARD I. KLEIN. Investigation of the interaction of radiative transfer and hydrodynamic shock wave phenomena in astrophysical situations with particular application to the theoretical study of spectral line transfer in pulsating variable stars, with Dr. Wolfgang Kalkofen, Smithsonian Astrophysical Observatory, from July 1972 to July 1973.

CHARLES J. LADA. Astrophysical research with Dr. Douglas Kleinmann, Smithsonian Astrophysical Observatory, from June 1972 to June 1973.

WILLIAM T. POTTS. Basic petrographic and mineralogical analytic techniques and their application to specific archeological problems, with Dr. William G. Melson, National Museum of Natural History, from August 1972 to August 1973.

### Smithsonian Conservation Fellows

STEPHEN W. BROOKE. Advanced conservation techniques, with Mr. Anton J. Konrad, National Collection of Fine Arts-National Portrait Gallery Conservation Laboratory, from September 1972 to September 1973.

SUSAN S. BROOKE. Advanced conservation techniques, with Mr. Anton J. Konrad, National Collection of Fine Arts-National Portrait Gallery Conservation Laboratory, from September 1972 to September 1973.

D. ERIC D. LAWSON. Methods of treating archeological finds from underwater, with Mr. Robert M. Organ, Conservation Analytical Laboratory, from July 1972 to July 1973.

BETTINA A. RAPHAEL. Practical application of conservation techniques and research methods, with Mr. Robert M. Organ, Conservation Analytical Laboratory, from September 1972 to September 1973.

HENRIETTE WIELANDT. Conservation and examination of metals, ceramics, and organic materials, with Mr. Robert M. Organ, Conservation Analytical Laboratory, from September 1972 to March 1973.

### Smithsonian Art Museum Fellow

THOMAS W. BOWER. Museum professions and operations, with Mr. Robert T. Davis, National Collection of Fine Arts, from September 1972 to June 1973.

### Smithsonian Cooperative Fellows

#### *Program in American and Cultural History*

BETH M. GROSVENOR. George Washington University. Studies in American material culture, with Dr. Wilcomb E. Washburn, Office of American Studies, from September 1972 to July 1973.

CHERYL D. HAYES. Georgetown University. Studies in American material

culture, with Dr. Wilcomb E. Washburn, Office of American Studies, from September 1972 to June 1973.

JUDITH G. JOSEPH. Georgetown University. Studies in American material culture, with Dr. Wilcomb E. Washburn, Office of American Studies, from September 1972 to July 1973.

## Graduate and Undergraduate Research and Study Appointments

Asterisks indicate students whose research was supported through grants from the National Science Foundation's Undergraduate Research Participation Program, Grants GY9729: Social Sciences and GY9734: Geological Sciences.

### *Program in American and Cultural History*

SHERIDAN GERMANN. Boston University. Study and research on full scale plans and sections of old keyboard instruments, with Mr. John Fesperman, National Museum of History and Technology.

VENITA LUTES. Gallaudet College. Study of the principles and the techniques of archival administration, with Mr. Richard Lytle, Smithsonian Archives.

KENNETH ROTH. Gallaudet College. Study of the principles and the techniques of archival administration, with Mr. Richard Lytle, Smithsonian Archives.

### *Program in Anthropology*

\* JUDITH BERGIN. University of California. Research on Indians east of the Mississippi River, with Dr. Sam Stanley, Center for the Study of Man.

\* ELIZABETH CAPPS. Pomona College. Studies in anthropological conservation, with Mrs. Bethune Gibson, National Museum of Natural History.

HYOP CHOI. University of Cincinnati. A study of Korean cultural change, with Dr. Eugene Knez, National Museum of Natural History.

WILLIAM COLBY. University of Wisconsin. Research on the biography of James Mooney and the Bureau of American Ethnology, 1885-1921, with Mrs. Margaret Blaker, National Museum of Natural History.

\* IRA JACKNIS. Yale University. Research into illustrations of early museum exhibitions, with Dr. William Sturtevant, National Museum of Natural History.

LENT JOHNSON. Bowdoin College. A study of skeletal biology of the Arkansas Indians, with Dr. Donald Ortner, National Museum of Natural History.

ROBERT KORVER. University of Colorado. Study and research into Indian peace medals of the Lewis and Clark and the Pike expeditions, with Dr. Vladimir Clain-Stefanelli, National Museum of History and Technology.

\* CLARK LARSEN. Kansas State University. Research and analysis of a skeletal population from Mobridge, South Dakota, with Dr. Douglas Ubelaker, National Museum of Natural History.

\* BRUCE LOUTHAN. University of Utah. Analysis and classification of trans-Pecos basketry from Texas and Coahuila, Mexico, with Dr. James Adovasio, National Museum of Natural History.

\* WILLIAM MERRILL. University of North Carolina. Comparative ethnology of the Black Drink, with Dr. William Sturtevant, National Museum of Natural History.



- \* DAVID SHAUL. University of Arizona. Research, description, and classification of Uto-Aztecan and Shoshonean language documents, with Mrs. Margaret Blaker, National Museum of Natural History.
- \* NAOMI SMITH. University of Chicago. Research on Indians east of the Mississippi River, with Dr. Sam Stanley, Center for the Study of Man.

*Program in Environmental Sciences*

- KAREN NORDELL. George Washington University. Research on photomorphogenesis in plants, with Dr. Robert Weintraub, Radiation Biology Laboratory.
- JEAN SCHMIDT. Carleton College. Studies in economics and biology centered around the problem of man's utilization of resources, with Dr. Kevin Sullivan, Chesapeake Bay Center for Environmental Studies.
- LESLIE TOLBERT. Radcliffe College. A literature survey of *Spartina* marsh grass, with Dr. Bert Drake, Radiation Biology Laboratory.

*Program in Evolutionary and Systematic Biology*

- SUSAN CUMMINGS. American University. A revision of cheilostome bryozoan taxonomy, with Dr. Alan Cheetham, National Museum of Natural History.
- JUAN DEL ROSARIO. University of Panama. Research and study of the biological collection from Panama, with Dr. Meredith Jones, National Museum of Natural History.
- TIMOTHY FRIEDLANDER. Oberlin College. Study of mimicry aspects of certain microlepidoptera (Aegeriidae), with Dr. Donald Duckworth, National Museum of Natural History.
- \* JAMES KALTENBACH. George Washington University. Study of a fossil sperm whale from the Miocene Yorktown Formation of North Carolina, with Dr. Clayton Ray, National Museum of Natural History.
- \* LYNNE KELLER. American University. Study of a molluscan family over the Cenozoic boundary, with Dr. Erle Kauffman, National Museum of Natural History.
- \* ELIZABETH KNIGHT. Mt. Holyoke College. Research into the discoloration of carbonate skeletal material in anaerobic environments, with Dr. Ian Macintyre, National Museum of Natural History.
- \* ANDREW SALSBERY. University of Cincinnati. Research on taxonomic and nomenclatural problems involving invertebrates, with Mr. Frederick Collier, National Museum of Natural History.
- BARBARA SULLIVAN. Oregon State University. Preliminary studies on the feeding habits of predatory oceanic copepods, with Dr. Thomas Bowman, National Museum of Natural History.
- LAURALEE THOMPSON. Florida Presbyterian College. Research in behavioral and ethnological studies, with Dr. Sam Weeks, National Zoological Park.
- \* JAMES WESTGATE. College of William and Mary. A study of the Right Whale from the Yorktown Formation of Hampton, Virginia, with Dr. Clayton Ray, National Museum of Natural History.
- DANIEL WOLFF. George Washington University. Research into the relationship of bone length in primates to arboreal, walking, and climbing locomotion, with Dr. Richard Thorington, National Museum of Natural History.

*Program in the History of Art*

- THERESA CARROLL. Mary Washington College. Research and study on prints

and drawings in the collections, with Mrs. Patricia Chieffo, National Collection of Fine Arts.

RICHARD DIEKMANN. University of Maryland. Research for preparation of exhibitions and catalogs, with Mr. Dennis Gould, National Collection of Fine Arts.

JAN THORMAN. Yale University. Research on contemporary painting and sculpture, with Mrs. Patricia Chieffo, National Collection of Fine Arts.

*Program in the History of Science and Technology*

NANCY BLOOM. George Washington University. Searching for Joseph Henry documents in collections at the Museum of History and Technology, with Dr. Nathan Reingold, The Joseph Henry Papers.

\* ROTH A HOLBERT. Federal City College. Research in alchemy and philosophy of the Renaissance, with Dr. Jon Eklund, National Museum of History and Technology.

BONNIE KAPLAN. University of Chicago. Work on the Computer History Project, with Dr. Henry Tropp, National Museum of History and Technology.

\* EDWARD KORN. University of Maryland. A study into the development of algebra during the first half of the 19th century, with Dr. Henry Tropp, National Museum of History and Technology.

\* ELIZABETH LUEBBERT. Wellesley College. Research into early computer history, with Dr. Henry Tropp, National Museum of History and Technology.

\* KATE MOORE. Yale University. Research and study on the papers of Joseph Henry, with Dr. Nathan Reingold, The Joseph Henry Papers.

\* JAMES MORRIS. Southern Methodist University. Research into the life of William Thornton, the history of the early patent office, and the general subject of American patent law, with Mr. Robert Vogel, National Museum of History and Technology.

WILLIAM WEBB. Harvard University. Study into the development of the recording spectrophotometer and other photometric devices, with Dr. Jon Eklund, National Museum of History and Technology.

ELLEN YORK. University of California. Research and study involving the papers of Joseph Henry, with Dr. Nathan Reingold, Joseph Henry Papers.

*Program in Physical Sciences*

JOHN BALDWIN. Harvard University. Debugging cool star model atmosphere computer program, with Dr. Owen Gingerich, Smithsonian Astrophysical Observatory.

DENNIS BALODIMOS. National Technical University, Athens, Greece. Working on plans for upgrading the Athens Satellite Tracking Station instrumentation and operation, with Dr. George Veis, Smithsonian Astrophysical Observatory.

GREGORY BEARMAN. Brandeis University. Investigation of nuclear rater involved in stellar energy sources, with Dr. Henri Mitler, Smithsonian Astrophysical Observatory.

CHARLES BEICHMAN. Harvard University. Design, development, and construction of Far-IR polarimeter for second series of IR balloon flights, with Dr. Robert Noyes, Smithsonian Astrophysical Observatory.

RONALD BIENIEK. Harvard University. Quantal calculations of Penning and associative ionization for a thermal  $\text{He}^+ + \text{H}$  colliding systems, with Dr. Alexander Dalgarno, Smithsonian Astrophysical Observatory.



- \* JOHN DARABARIS. University of Illinois. Study of the Catoctin Basalts in Maryland, with Mr. Harold Banks, National Museum of Natural History.
- CLARENCE GERDES. University of Arizona. Reduction of observational data, with Dr. Trevor Weekes, Smithsonian Astrophysical Observatory.
- SETHANNE HAYES. Rennselaer Polytechnic Institute. Astrophysical research on absolute calibration of energy flux of standard stars, with Dr. David Latham, Smithsonian Astrophysical Observatory.
- \* JO DENAL JOHNSON. University of Michigan. Research and study on sediments in the Rhode River estuary, with Dr. Jack Pierce, National Museum of Natural History.
- DANIEL KELLEY. Harvard University. Reanalysing three years of Mt. Hopkins gamma ray data and computer programming, with Dr. Henry Helmken, Smithsonian Astrophysical Observatory.
- NANCY LEE. University of Illinois. Description and interpretation of Mediterranean sea cores with specific emphasis on clay sedimentation and sedimentation processes, with Dr. Daniel Stanley, National Museum of Natural History.
- EVANGELOS LIVIERATOS. National Technical University, Athens, Greece. Assisting on calculations for the Standard Earth, with Dr. George Veis, Smithsonian Astrophysical Observatory.
- \* BONNIE ROBINSON. Oberlin College. Analysis of deep sea basalts using X-ray diffraction methods, with Mr. Harold Banks, National Museum of Natural History.
- WILLIAM WYATT. Harvard University. Study of the effects of various exposures and developing time on the noise content of photographic plates, with Dr. David Latham, Smithsonian Astrophysical Observatory.
- MICHAEL ZEILIK. Harvard University. Photometry and spectroscopy of HII regions in the infrared region of the spectrum from a forty inch balloon-borne telescope, with Dr. G. G. Fazio, Smithsonian Astrophysical Observatory.
- \* BETH ZIGMONT. Smith College. A study of some aspects of the geology of the Galapagos Islands, with Dr. Thomas Simkin, National Museum of Natural History.

#### *Program in Museum Study*

- JOE BENTLEY. A photographic study of outside sculpture and art in Washington, D.C., with Mr. James Goode, Smithsonian Institution Building.
- JEAN BERMAN. New College. Studies in the Renwick Gallery, with Mr. Arthur Feldman, National Collection of Fine Arts.
- MARY BRADY. The State University of New York at Oswego. Studies of color slides relating to the Smithsonian's collection of antique furniture and Washington, D.C., architecture and sculpture, with Mr. James Goode, Smithsonian Institution Building.
- RUSSEL CHAMBERLAYNE. George Washington University. Studies in accessioning, cataloguing, and research in material culture, with Mr. Donald Kloster, National Museum of History and Technology.
- WILLIAM CONNER. Grinnell College. General assistance with maintenance of archival resources and with interpretive programs related to the collection, with Mr. John Fesperman, National Museum of History and Technology.
- CYNTHIA CUMMINGS. College of Notre Dame of Maryland. Studies in the Division of Military History, with Mr. Donald Kloster, National Museum of History and Technology.



- CONSTANCE FOARD. Elizabethtown College. Studies in the Smithsonian Institution Archives, with Mr. William Deiss, Smithsonian Institution Archives.
- CAROLINE GILES. Princeton University. Studies in the Division of Military History, with Mr. Donald Kloster, National Museum of History and Technology.
- BARBARA HEFFERNAN. Dunbarton College. Training in the duties of a museum technician in the Department of Invertebrate Zoology, with Dr. Klaus Ruetzler, National Museum of Natural History.
- SANDRA HENNING. University of Maryland. Studies in styles of women's head-dress, 1800-1870, with Mrs. Claudia Kidwell, National Museum of History and Technology.
- KATHERINE MENZ. Vassar College. Study of 19th century American furnishings through the reorganization and recataloguing of the Smithsonian's collection of Victorian furnishing, with Mr. James Goode, Smithsonian Institution Building.
- MARTIN MCGEE. Point Park College. Research into the logistic supply of Benedict Arnold's squadron on Lake Champlain in 1776, with Dr. Philip Lundeborg, National Museum of History and Technology.
- ROBINA MCGEE. Bennington College. Studies in the Renwick Gallery, with Mr. Lloyd Herman, National Collection of Fine Arts.
- PAUL MELLONI. Studies in exhibits and modeling, with Mr. John Widener, National Museum of Natural History.
- HEATHER NOBLE. Bennington College. Studies in photography, with Mr. Lowell Kenyon, National Collection of Fine Arts.
- SHARON RENKOSIAK. Loyola University of Chicago. Inventory of U.S. industrial archaeological sites, with Mr. Robert Vogel, National Museum of History and Technology.
- JOYCE STONER. New York University. Studies in conservation with Mr. Anton Konrad, National Collection of Fine Arts and National Portrait Gallery.
- REBECCA TIGER. George Washington University. Studies in museum planning, with Gilbert Wright, Office of Museum Programs.
- THOMAS TRUMPLER. University of California at Berkeley. Studies in scientific illustration, with Mr. Lawrence Isham, National Museum of Natural History.
- SUSAN VORHEES. Ohio Wesleyan University. Research and writing on works of art in preparation for educational materials to be used on the high school level, with Mr. Darrel Sewell, National Collection of Fine Arts.
- SUSAN WHITE. Sweet Briar College. Cataloguing naval uniforms of the 19th and 20th centuries, with Dr. Harold Langley, National Museum of History and Technology.

## Appendix 4

### NATIONAL MUSEUM ACT GRANTS, 1972-1973

1972

AMERICAN ASSOCIATION OF MUSEUMS, WASHINGTON, D.C. Proposal to develop a curriculum in museology; three workshops in museum administration; National Museum Act/American Association of Museums Day at the Regional Museum Conferences; the development of an international exchange program for museum professionals.

AMERICAN ASSOCIATION FOR STATE AND LOCAL HISTORY, NASHVILLE, TENNESSEE. A program of consultant services to small history museums; a proposal for the preparation of a book on "The Interpretation of Historic House Museums"; a program of training workshops for historical museum personnel.

AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK, NEW YORK. Support for *Curator*, a journal for the museum profession.

COOPERSTOWN GRADUATE PROGRAM, COOPERSTOWN, NEW YORK. Internship program in conservation; twenty summer work projects in conservation.

FISK UNIVERSITY, DEPARTMENT OF ART, NASHVILLE, TENNESSEE. Extension services in museum training.

ICOM-U.S. NATIONAL COMMITTEE, WASHINGTON, D.C. US-ICOM-(Support Grant).

KANSAS STATE HISTORICAL MUSEUM, TOPEKA, KANSAS. Mobile training laboratory for museum personnel.

MAINE STATE MUSEUM, AUGUSTA, MAINE. Museum apprentice program.

MILWAUKEE ART CENTER AND THE UNIVERSITY OF WISCONSIN AT MILWAUKEE, MILWAUKEE, WISCONSIN. Museum education research.

NATIONAL MUSEUM OF NATURAL HISTORY, WASHINGTON, D.C. Systematic Biology: The development of a national program on resources and resource-management.

NATIONAL TRUST FOR HISTORIC PRESERVATION, WASHINGTON, D.C. Seminar for historical administrators.

NEW YORK STATE HISTORICAL ASSOCIATION, COOPERSTOWN, NEW YORK. Publication: *Guide to Historic Preservation Historical Agencies, and Museum Practices: A Selective Bibliography*.

UNIVERSITY OF DELAWARE, NEWARK, DELAWARE. Advanced museum studies program.

## 1973

AMERICAN ASSOCIATION FOR STATE AND LOCAL HISTORY, NASHVILLE, TENNESSEE. Specialized seminars for history museum personnel; consultant services to history museums; development of a low cost tape cassette training program for historical museums and society personnel.

AMERICAN ASSOCIATION OF MUSEUMS, WASHINGTON, D.C. AAM/NMA Day: 1973; support for research of AAM 1973; museum and financial salary survey; the development of an international exchange program for museum professionals.

AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK, NEW YORK. A special session at the regional conferences on urban issues and urban museums.

CONSERVATION CENTER OF THE INSTITUTE OF FINE ARTS, NEW YORK, NEW YORK. Internships for conservation program.

COOPERSTOWN GRADUATE PROGRAM, COOPERSTOWN, NEW YORK. Internship support in conservation.

THE CORNING MUSEUM OF GLASS, CORNING, NEW YORK. Scientific research on the conservation of flood-damaged books in a museum library.

INDIANA UNIVERSITY MUSEUM, BLOOMINGTON, INDIANA. Polyethylene glycol consolidation of cracked wooden ethnographic artifacts: a research project in conservation techniques.

ICOM-U.S. NATIONAL COMMITTEE, WASHINGTON, D.C. US-ICOM-Committee program support.

INTERNATIONAL INSTITUTE FOR CONSERVATION OF HISTORIC AND ARTISTIC WORKS. Seminar on the scientific approach to the preservation of paper artifacts.



KANSAS STATE HISTORICAL MUSEUM, TOPEKA, KANSAS. Mobile training laboratory for museum personnel.

MADISON COUNTY HISTORICAL SOCIETY, ONEIDA, NEW YORK. Publication: *The Craft Documentation Field Report*.

MERRIMACK VALLEY TEXTILE MUSEUM, ANDOVER, MASSACHUSETTS. Professional assistance to museums and historical agencies in the Merrimack Valley.

MISSOURI STATE COUNCIL ON THE ARTS, ST. LOUIS, MISSOURI. Museum training program.

NATIONAL TRUST FOR HISTORIC PRESERVATION, WASHINGTON, D.C. Seminar for historical administrators.

NEW YORK STATE HISTORICAL ASSOCIATION, COOPERSTOWN, NEW YORK. Publication: *Guide to Historic Preservation Historical Agencies and Museum Practices: A Selective Bibliography*.

SHELDON JACKSON COLLEGÉ, SITKA, ALASKA. Museum training program.

TEXAS STATE HISTORICAL SURVEY COMMITTEE, AUSTIN, TEXAS. Museum administration training seminar; one-day museum training workshop.

UNIVERSITY MUSEUM, UNIVERSITY OF ARKANSAS, FAYETTEVILLE, ARKANSAS. Museum data bank coordinating committee.

UNIVERSITY OF CALIFORNIA MUSEUM OF CULTURAL HISTORY, LOS ANGELES, CALIFORNIA. Museum training program for minority personnel.

W. H. OVER DAKOTA MUSEUM, UNIVERSITY OF SOUTH DAKOTA, VERMILLION, SOUTH DAKOTA. South Dakota museologist consultant program.

WASHINGTON REGION CONSERVATION GUILD, WASHINGTON, D.C. Microscopy for conservators: a workshop.

## Appendix 5

### SMITHSONIAN FOREIGN CURRENCY PROGRAM GRANTS AWARDED IN FISCAL YEAR 1973

#### Archeology and Related Disciplines

- AMERICAN INSTITUTE OF INDIAN STUDIES, PHILADELPHIA PENNSYLVANIA. Continued support for Poona Center, Benares Center for South Asian Art and Archaeology, and American Institute of Indian Studies research fellowships.
- AMERICAN NUMISMATIC SOCIETY, NEW YORK, NEW YORK. Participation of Polish scholars in the International Numismatic Congress.
- AMERICAN RESEARCH CENTER IN EGYPT, PRINCETON, NEW JERSEY. Continued support for a program of research and excavation in Egypt: support for operation of Cairo Center, fellowship activities, study of the early history of Biblical themes in Coptic art, preparation for manuscript publication, excavations in the pyramid area at Giza, maintenance of the site of Hierakonpolis (Nekhen), maintenance of a stratified pharonic site at Mendes, the Akhenaten Temple project, study of the decorative arts of ancient Egypt, a program to conserve, record, analyze and publish four Old Kingdom mastabas, epigraphic survey and maintenance of Chicago House at Luxor.
- BROOKLYN COLLEGE, CITY UNIVERSITY OF NEW YORK, BROOKLYN, NEW YORK. Study of excavated material from the early Neolithic site of Starcevo, Yugoslavia.
- DUMBARTON OAKS CENTER FOR BYZANTINE STUDIES, WASHINGTON, D.C. Excavations leading to the publication of a corpus of the ancient mosaics of Tunisia.
- NEW YORK UNIVERSITY, NEW YORK, NEW YORK. Ksar es-Seghir: an investigation in Islamic archeology and history (Morocco).
- SMITHSONIAN INSTITUTION, DEPARTMENT OF ANTHROPOLOGY, WASHINGTON, D.C. Helmand-Sistan project: studies of historical ecology.
- SOUTHERN METHODIST UNIVERSITY, DALLAS, TEXAS. Prehistory of the western desert, Egypt.
- STATE UNIVERSITY OF NEW YORK, BUFFALO, NEW YORK. Archeological investigations on the Neolithic and Early Bronze Ages in southeastern Poland.
- STATE UNIVERSITY OF NEW YORK, BUFFALO, NEW YORK. Participation of Polish archeologists in International Congress of Anthropological and Ethnological Sciences.
- UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA. Excavations at the Palace of Diocletian at Split, Yugoslavia.
- UNIVERSITY OF PENNSYLVANIA, UNIVERSITY MUSEUM, PHILADELPHIA, PENNSYLVANIA. Excavations within the town and harbor site of Malkata, Western Thebes, Egypt.
- UNIVERSITY OF TEXAS, AUSTIN, TEXAS. Archeological excavations at Stobi, Yugoslavia.

## Systematic and Environmental Biology (Including Paleobiology)

- ACADEMY OF NATURAL SCIENCES, PHILADELPHIA, PENNSYLVANIA. A biochemical investigation of *Rana esculenta*, a bisexual frog of possible hybrid origin (Poland).
- COLORADO STATE UNIVERSITY, BOULDER, COLORADO. Conducting a workshop on ecosystem modelling (India).
- CORNELL UNIVERSITY, ITHACA, NEW YORK. Studies on the evolution and adaptation of the pan-tropical teleost genus *Thalassoma* (Tunisia).
- DUKE UNIVERSITY, DURHAM, NORTH CAROLINA. The role of environmental factors in modifying the effect of pollutants on larval development of marine *Brachyura* (Poland).
- HARVARD UNIVERSITY, CAMBRIDGE, MASSACHUSETTS. Study of the postcranial anatomy of Cretaceous mammals from Mongolia (Poland).
- SMITHSONIAN INSTITUTION, DEPARTMENT OF BOTANY, WASHINGTON, D.C. Continued revision of *Trimens' Handbook to the Flora of Ceylon*.
- SMITHSONIAN INSTITUTION, DEPARTMENT OF ENTOMOLOGY, WASHINGTON, D.C. Publication of two entomological manuscripts (Egypt).
- SMITHSONIAN INSTITUTION, DEPARTMENT OF INVERTEBRATE ZOOLOGY, WASHINGTON, D.C. Marine decapod Crustaceans of North Africa (Tunisia).
- SMITHSONIAN INSTITUTION, DEPARTMENT OF PALEOBIOLOGY, WASHINGTON, D.C. Study of ultrastructure, systematics and zoological affinities of Paleozoic graptolites and related fossils (Poland).
- SMITHSONIAN INSTITUTION, DEPARTMENT OF PALEOBIOLOGY, WASHINGTON, D.C. The effect of the salinity crisis on Miocene Tethys microfauna (Tunisia).
- SMITHSONIAN INSTITUTION, OFFICE OF ENVIRONMENTAL SCIENCES, WASHINGTON, D.C. Limnological investigations of Lake Skadar, Yugoslavia.
- SMITHSONIAN INSTITUTION, OFFICE OF ENVIRONMENTAL SCIENCES, WASHINGTON, D.C. Support for Mediterranean Marine Sorting Center (Tunisia).
- SMITHSONIAN INSTITUTION, TROPICAL RESEARCH INSTITUTE, BALBOA, CANAL ZONE. Ecology of small animals of tropical grasslands (Poland).
- SOUTHERN METHODIST UNIVERSITY, DALLAS, TEXAS. Processing of additional sediments from the Gebel el Muluk Pliocene locality at Wadi Natrum (Egypt) for recovery of vertebrate fossils.
- UNIVERSITY OF ARIZONA, TUCSON, ARIZONA. Mammalian studies in Tunisia.
- UNIVERSITY OF CALIFORNIA, BERKELEY, CALIFORNIA. Pollen flow in *Lythrum junceum* (Tunisia).
- UNIVERSITY OF COLORADO, BOULDER, COLORADO. Late Tertiary biochronology of mammalian faunas in the western Mediterranean area, Tunisia.
- UNIVERSITY OF MAINE, ORONO, MAINE. The use of entomogenous fungi to control insects (Poland).
- UNIVERSITY OF MICHIGAN, ANN ARBOR, MICHIGAN. Biological studies of Indian mollusks.
- UNIVERSITY OF WASHINGTON, SEATTLE, WASHINGTON. Endocrine basis of bird migration (India).
- YALE UNIVERSITY, NEW HAVEN, CONNECTICUT. Excavation of quarriable localities in the Siwaliks of the Potwar region, Pakistan.



## Astrophysics and Earth Sciences

SMITHSONIAN INSTITUTION, ASTROPHYSICAL OBSERVATORY, CAMBRIDGE, MASSACHUSETTS. Establishing the location of the Polish Latitude Observatory at Borowiec by artificial-satellite observations for inclusion in the Smithsonian observing network.

SMITHSONIAN INSTITUTION, ASTROPHYSICAL OBSERVATORY, CAMBRIDGE, MASSACHUSETTS. International colloquium on reference coordinate systems for earth dynamics (Poland).

SMITHSONIAN INSTITUTION, ASTROPHYSICAL OBSERVATORY, CAMBRIDGE, MASSACHUSETTS. Muon-neutrino investigations and geophysical studies involving low-level counting (India).

SMITHSONIAN INSTITUTION, ASTROPHYSICAL OBSERVATORY, CAMBRIDGE, MASSACHUSETTS. Support of Smithsonian astrophysical observing station at Nainital, India.

UNIVERSITY OF TEXAS, AUSTIN, TEXAS. Heavy element synthesis by the R-process (Poland).

## Museum Programs

NATIONAL TRUST FOR HISTORIC PRESERVATION, WASHINGTON, D.C. Advanced study of conservation and restoration methods applied to historic monuments and sites in Poland.

SMITHSONIAN INSTITUTION, DIVISION OF MEDICAL SCIENCES, WASHINGTON, D.C. Examination of Arabic ophthalmological and optical manuscripts (Egypt).

SMITHSONIAN INSTITUTION, DIVISION OF MEDICAL SCIENCES, WASHINGTON, D.C. Studies of Arabic manuscripts of medicine and pharmacy as well as libraries, museums, and medico-pharmaceutical collections in India.

SMITHSONIAN INSTITUTION, DIVISION OF PERFORMING ARTS, WASHINGTON, D.C. A study in cultural cognates and living museology (Tunisia, Egypt, Yugoslavia, Poland).

SMITHSONIAN INSTITUTION, DIVISION OF TEXTILES, WASHINGTON, D.C. A survey of Polish textiles, past and present.

SMITHSONIAN INSTITUTION, OFFICE OF EXHIBITS PROGRAMS, WASHINGTON, D.C. *It All Depends*: Two films depicting how man affects and is affected by the natural environment (Poland).

SMITHSONIAN INSTITUTION, OFFICE OF EXHIBITS PROGRAMS, WASHINGTON, D.C. *Power in Numbers*: An animated film exploring the U.S. Census as a basic inventory of American life (Poland).

THEATER IN THE STREET, NEW YORK, NEW YORK. Study of street theater in India.

## Appendix 6

### LIST OF PUBLICATIONS PRODUCED WITH SMITHSONIAN FOREIGN CURRENCY SUPPORT SINCE THE INCEPTION OF THE SMITHSONIAN FOREIGN CURRENCY PROGRAM

#### Archeology and Related Disciplines

- Aleksova, Blaga. "Bargla-Bregalnica in the Light of the New Archaeological Discoveries," *IJIACHIIK*, volume XI, number 3 (1967).
- Aleksova, Blaga, and Cyril Mango. "Bargala A Preliminary Report." *Dumbarton Oaks Papers*, No. 25. Washington, D.C. 1971.
- Alvarez, Luis W., Jared A. Anderson, F. El Bedwei, James Burkhard, Ahmed Fakhry, Adib Girgis, Amr Goneid, Fikhry Hassan, Dennis Iverson, Gerald Lynch, Miligy, Zemh, Meussa, Ali Hilmy; Mohammed-Sharkawi; Lauren Yazolino. "Search for Hidden Chambers in the Pyramids," *Science*, volume 167, (6 February 1970), pages 832-839.
- American Academy of Benares. *Bulletin of the American Academy of Benares*, volume 1, November 1967.
- American Institute of Indian Studies. *American Institute of Indian Studies Annual Report, 1966-1967*. Philadelphia: American Institute of Indian Studies, University of Pennsylvania.
- American Institute of Indian Studies. *American Institute of Indian Studies Annual Report, 1967-1968*. Philadelphia: American Institute of Indian Studies, University of Pennsylvania.
- "Arheoloski Projekt u Sloveniji," *Pregled*, God. XI, Broj. 10, (Oktobar 1968), page 41.
- Baumgartel, Elise J. "About Some Ivory Statuettes from the 'Main Deposit' at Hierakonopolis," *Journal of the American Research Center in Egypt*, volume VII (1968), pages 7-14.
- Bell, Lanny. "Provisional Report on Third Season, Dra Abu el-Naga Project, University Museum, Philadelphia," *American Research Center in Egypt Newsletter*, No. 74 (July 1970), pages 21-22.
- . "Return to Dra Abu el Naga," *Expedition: Bulletin of the University Museum, University of Pennsylvania*, volume 11, number 3 (Spring 1969), pages 26-37.
- . "The Work of the University Museum at Thebes," *Expedition: Bulletin of the University Museum, University of Pennsylvania*, volume 10, number 2 (Winter 1968), pages 38-47.
- Biggerstaff, Robert H. "An Atypical Bronze Age Mandible from Zerniki Górne, Poland," *American Journal of Physical Anthropology*, volume 35, number 2 (September 1971).

- Breternitz, David A. "Interim Report of the University of Colorado-Kainji Rescue Archeology Project, 1968," *West African Archeological Newsletter*, No. 10 (October 1968), pages 31-42.
- . "Rescue Archeology at the Kainji Dam Northern Nigeria," *Current Anthropology*, volume 10, number 1 (February 1969), page 136.
- Brill, Robert H. "A Great Glass Slab," *Archeology*, volume 20, number 2 (April 1967), pages 88-95.
- . "Beth Shearim" and "Beth Shean," *Israel Exploration Journal*, volume 15, number 4 (1965), pages 261-262.
- Brill, Robert H., and John F. Wosinski. "A Huge Slab of Glass in the Ancient Necropolis of Beth She'Arim," *CDU/UDC/DK*, 666.1, (091), (569.4).
- Callaway, Joseph A. "The 1968-1969 'Ai (et-Tell) Excavations," *Bulletin of the American Schools of Oriental Research*, No. 198 (April 1970), pages 7-31.
- Campbell, Edward F., Jr., James F. Ross, and Lawrence E. Toombs. "The Eighth Campaign at Balātah (She'chem)," *Bulletin of the American Schools of Oriental Research*, number 204 (December 1971), pages 2-17.
- Chandra, Pramod. *Stone Sculpture in the Allahabad Museum*. American Institute of Indian Studies Publication No. 2. Poona: 1970.
- Dever, William G. "Archeology and the Bible," *Wizo*, number 144 (November-December 1968), pages 12-13.
- . "Excavations at Gezer, 1964-1967," *Jerusalem Through the Ages: Report of the Twenty-Fifth Archaeological Conventions, Israel Exploration Society Jerusalem*, (1968), pages 26-32.
- . "Gezer," *Revue Biblique*, volume LXXV (1968), pages 381-387.
- . "Gezer, A City Coming to Life," *Qadmoniot: Quarterly of the Israel Exploration Society*, volume 3, number 2 (10), (1970), pages 57-62.
- . "Gezer—A Palestinian Mound Re-excavated," *Journal of Art History and Archeology*, volume 8, number 3 (1968), pages 65-74.
- Dever, William G., Darrell H. Lance, Reuben G. Bullard, Dan P. Cole, Anita M. Furshpan, John Holladay, Jr., Joe D. Seger, and Robert B. Wright. "Further Excavations at Gezer 1967-71," *The Biblical Archeologist*, volume 34, number 4 (December 1971), pages 94-131.
- Dothan, M. "Notes and News-Tel Ashdod," *Israel Exploration Journal*, volume 18, number 4 (1968), pages 253-254.
- . "Notes and News, Tel Ashdod," *Israel Exploration Journal*, (1970), pages 119-120.
- Dothan, M., and D.N. Freedman. "Ashdod I, The First Season of Excavations, 1962." *'Antiqot: Publication of Hebrew University and Ministry of Education and Culture, Jerusalem*, volume VII (1967).
- "Excavations at Jalome, 1964-67," *Muse: Annual of the Museum of Art and Archeology, University of Missouri*, number 2 (1968), page 13.
- Foltiny, Stephan. "Ein Griffangelschwert der Urnenfelderzeit aus Este," *Adriatica*, (1970), pages 153-160.
- . "Ein Vogelanhänger aus 'Siebenbürgen' im Burgenländischen Landesmuseum," *Apulum IX: Acta Musei Apulensis*, (1971), pages 65-70.
- . "Eine Vierpassfibel mit goldener Schmuckplatte aus Niederbreisig und einige verwandte Stücke aus Nordfrankreich im Metropolitan Museum of Art in New York," *Bonner Hefte zur Vorgeschichte*, number 3 (1972), pages 53-59.
- . "Einige Spätbronzezeitliche Goldfunde aus Siebenbrügen im Naturhistorischen Museum," *Ann. Naturhistor. Mus. Wien*, (November 1968), pages 703-711.



- . "Interessante Vorges-chichtliche und romerzeitliche Funde im Museum der Stadt Villach," *Neues Aus Ait-Villach: Bulletin of Museum der Stadt Villach*, 5 Jahrbuch (1968), pages 9–17.
- . "Neue Angaben zur Kenntnis der Urnenfelderzeitlichen Keramik im südlichen Teile des Karpatenbeckens," *APVLVM VI: Acta Musei Apulensis*, (1967), pages 49–71.
- . *RAD VOJVODJANSKIH MUZEJA*, volumes 15–17, 1966–1968, (published in 1971).
- . *The Hungarian Archeological Collection of the American Museum of Natural History in New York*. Bloomington: Indiana University Publications, Uralic and Altaic Series (volume 77), 1969.
- . "The Ivory Horse Bits of Homer and the Bone Horse Bits of Reality," *Bonner Jahrbuchen Band 167*, (1967), pages 11–37.
- . "Urnen felderzeitliche Funde aus Sopron (Ödenburg) im Burgenländischen Landesmuseum und ihre östlichen Beziehungen," *Burgenländische Heimatblätter (Eisenstadt)*, (1969), pages 97–107.
- . "Zum Problem der Sogennannten Pseudo-Protovillanovaurnen," *Origini II*, (1968), pages 333–356.
- . "Zur Frage der Mitteldonauländischen Hügelgraberkultur in Nordostjugoslawien," (*VIII*) *Musaica, Zbornik Filozofickej Fakulty Univerzity Komenského*, (1968).
- . "Zwei Feuerböcke aus dem Ringwall von Stična in Slowenien," *Mitteilungen der Anthropologischen Gesellschaft in Wien*, (1970), pages 158–161.
- . "Zwei Prachtgefäße der Osthall Stalkultur in Westungarn." *A Janus Pannonius Múzeum Évkönyve (Pecs)*, 1966, (1967), pages 57–61.
- Frey, Otto-Herman. "Der Fürstensitz von Stična in Slowenien," *Alma Mater Philippina*, Marburger Universitätsbund E.V., Marburg-Wintersemester (1968/69), pages 10–13.
- . "Zur Latènezeitlichen Besiedlung Unterkrains," *Fundberichte aus Hessen*, Beiheft 1, Festschrift Dehn (1969), pages 7–20.
- Gabrovec, Stan, Otto-Herman Frey, and Stephen Foltiny. "A Fortified Settlement and Tumulus Cemetery of the Iron Age at Stična in Slovenia," *Etruscans: Bulletin of the Etruscan Foundation*, No. 2 (1970–1972), pages 24–30.
- . "Erster Vorbericht Über die Ausgrabungen im Ringwall von Stična (Slowenien)," *Germania*, 1.–2. Halbband, (1970), pages 12–33.
- . "Prvo Poročilo o Naselbinskih Izopavanjih V Stični," *Arheološki Vestnik XX*, Ljubljana, (1969), pages 177–196.
- "Gezer," *Bible*, No. 116 (December 1969).
- Gimbutas, Marija. "Excavation at Anza, Macedonia," *Archaeology*, volume 25, number 2 (April 1972), pages 112–123.
- . "Obre, Yugoslavia, Two Neolithic Sites," *Archaeology*, volume 23, number 4 (October 1970), pages 287–297.
- "Glass Factories in Western Galilee," *Israel Exploration Journal*, volume 14, number 4 (1964), pages 286–288.
- Glock, Albert E. "A New Ta'anek Tablet," *Bulletin of the American Schools of Oriental Research*, No. 204 (December 1971), pages 17–30.
- Halpern, Jeanne W. "Studying Skulls in Egypt, UAR," *Research News: Bulletin of the Office of Research Administration, University of Michigan, Ann Arbor*, volume XXII, number 1 (July 1971).
- Hansen, Donald. "Mendes, 1964," *Journal of the American Research Center in Egypt*, volume IV (1965), pages 31–38.

- Hansen, Donald P., Christine L. Soghor, and Edward L. Ochsenschlager. "Mendes, 1965 and 1966," *Journal of the American Research Center in Egypt*, volume VI (1967), pages 5–51.
- Harris, James E. "The U-M's 1969 Expedition to Egypt," *Journal of the Michigan Dental Association*, volume 51 (July–August, 1969).
- Hestrin, Ruth. *The Philistines and the Other Sea Peoples*. Catalog of the Israel Museum, No. 68. Jerusalem: winter 1970.
- "Jelemiye, Beth-She'arim, Kafr Yasif," *Israel Exploration Journal*, volume 16, number 4 (1966), pages 283–284.
- Kessler, Christel. *Survey & Documentation of the Domed Mausoleums of Mamluk Cairo-Final Report*. Center for Arabic Studies, American University in Cairo, March 1971.
- . "The Decorated Domes of Cairo," *Fikrun Wa Fann*. (October 1969).
- Kubiak, Wladyslaw B. "Crusaders' Pottery of Al-Mīnā Found at Fustāt," *Folia Orientalia*, volume XII (1970), pages 113–123.
- . "Medieval Ceramic Oil Lamps from Fustat," in *Ars Orientalis VIII*. 1970.
- Lapp, Paul W. "The 1968 Excavations at Tell Ta'annek," *Bulletin of the American Schools of Oriental Research*, No. 195 (October 1969), pages 2–49.
- McPherron, Alan, and Elizabeth K. Ralph. "Magnetometer Location of Neolithic Houses in Yugoslavia," *Expedition: Bulletin of the University Museum, University of Pennsylvania*, volume 12, number 2 (Winter 1970), pages 10–17.
- McPherron, Alan, and D. Srejić. *Early Farming Cultures in Central Serbia*, National Museum of Kragujevac: September 1971.
- Meyers, Eric M., A. Thomas K. Raable, and James F. Strange. "Archeology and Ribbinic Tradition at Khirbet Shema', 1970 and 1971 Campaigns," *The Biblical Archeologist*, volume XXXV, number 1 (February 1972), pages 1–31.
- Milisauskas, Sarunas. "An Analysis of Linear Culture Longhouses at Olzanica B 1, Poland," *World Archaeology*, volume IV, number 1 (June 1972), pages 57–74.
- Millet, Nicholas B. "Gebel Adda: Preliminary Report, 1965–66," *Journal of the American Research Center in Egypt*, volume VI (1967), pages 53–63.
- Nims, Charles F. "The Eastern Temple at Karnak," *Beiträge zur Agyptischen Bauforschung und Alterumskunde: Schweizerisches Institut für Agyptische Bauforschung u Alterumskunde in Kairo*, Heft 12 (1971), pages 107–111.
- Ochsenschlager, Edward L. "The Cosmic Significance of the Plemochoe," in *History of Religions*, volume 9, number 4, Chicago: University of Chicago, 1970, pages 316–336.
- . "The Plemochoe, A Vessel from Thmuis," *Journal of the American Research Center in Egypt*, volume VII (1968), pages 55–71.
- "Olives for Breakfast," *Gulf Oilmanac*, volume 37, number 12 (December 1968), pages 10–11.
- Perrot, P. N. "The Excavation of Two Glass Factory Sites in Western Israel," *CDU/UDC/DK*, 666.1, (091), (569.4), 111.2.1, 258–258.4.
- Popović, Vladislav, and Edward L. Ochsenschlager, editors. *Sirmium II*, Beograd: Archeology Institute of Beograd, Denison University, City University of New York, 1971.
- Popović, Vladislav, and Edward Ochsenschlager. "Sremska Mitrovica-Sirmium," *Arheoloski Pregled II*, (1969), pages 186–190.
- Robinson, Peter, and Craig C. Black. "Notes Preliminaire sur les Vertebres Fossiles du Vindobonlen," *Notes Service Géologique Tunisie*, No. 31, (1969), pages 67–70.



- Said, Rushdi, Claude Albritton, Fredi Wendorf, Romuald Schild, and Michael Kobusiewicz. "A Preliminary Report on the Holocene Geology and Archaeology of the Northern Fayum Desert," *Playa Lake Symposium*, ICASALS Publication No. 4 (1972), pages 41-61.
- Scanlon, George T. "Ancillary Dating Materials from Fustat," in *Ars Orientalis VII*. 1968.
- . "Egypt and China: Trade and Imitation," in *Islam and the Trade of Asia* (edited by D. S. Richards. Oxford and Philadelphia: 1971), pages 81-95.
- . "Fatimid Filters: Archaeology and Olmer's Typology," *Annales islamologiques*, volume IX (1970), pages 37-51.
- . "Fustat and the Islamic Art of Egypt," *Archeology*, volume 21, number 3 (June 1968), pages 188-195.
- . "Fustat Expedition: Preliminary Report 1965, Part I," *Journal of the American Research Center in Egypt*, volume 5 (1966), pages 83-112.
- . "Fustat Expedition: Preliminary Report, 1965: Part II," *Journal of the American Research Center in Egypt*, volume VI (1967), pages 65-86.
- . "Housing and Sanitation," in *The Islamic City*. Edited by A.H. Houvani and S.M. Steow. Oxford: 1970.
- . "Preliminary Report: Excavations at Fustat, 1964," *Journal of the American Research Center in Egypt*, volume IV (1965), pages 7-30.
- . "The Fustat Mounds—A Shard Count, 1968," *Archeology*, volume 24, number 3 (June 1971), pages 220-233.
- Seger, Joe D. *Tomb Offerings from Gezer*. Catalogue No. 94. Jerusalem: The Rockefeller Museum, Summer 1972.
- Simons, Elwyn L. "Fossil Primates and the Evolution of Some Primate Locomotor Systems," *American Journal of Physical Anthropology*, volume 26, number 2 (March 1967), pages 241-253.
- . "The Earliest Apes," *Scientific American*, volume 217, number 6, (December 1967), pages 28-35.
- . "The Significance of Primate Paleontology for Anthropological Studies," *American Journal of Physical Anthropology*, volume 27, number 3 (November 1967), pages 307-332.
- . "Unraveling the Age of Earth and Man," *Natural History*, (February 1967), pages 53-59.
- Simons, E.L., and David Pilbeam. "A Gorilla-Sized Ape from the Miocene of India," *Science*, volume 173, number 3991 (2 July 1971), pages 23-27.
- Smith, Ray Winfield. "Akhenaten Temple Project," *Expedition*, volume 10, number 1 (Fall 1967), pages 24-32.
- . "Computer Helps Scholars Re-create an Egyptian Temple," *National Geographic*, volume 138, number 5 (November 1970), pages 634-655.
- Solheim, Wilhelm G., II, and S. Deraniyagala. "Archaeological Survey to Investigate Southeast Asian Prehistoric Presence in Ceylon," *Ancient Ceylon: Journal of the Archaeological Survey Department of Ceylon*, No. 1 (August 1972).
- Swauger, James L. "American Onslaught at Ashdod 1968," *Carnegie Magazine*, volume XLIII, number 2 (February 1969), pages 41-47.
- . "Getting to Know the Philistines," *Carnegie Magazine*, volume XLIV, number 2 (February 1970), pages 49-56.
- . "It's the People You Remember," *Carnegie Magazine*, volume XL, number 1 (January 1966), pages 15-16, 19 (cont.).
- . "John and the Philistines," *Youth*, volume 16, number 23 (19 December 1965).



- . "Of Digging, Publication and Tell Ashdod," *Carnegie Magazine*, volume XLV, number 8 (October 1971), pages 331–339.
- . "The Puzzle of the Philistines," *Carnegie Magazine*, volume XXXIX, number 1 (January 1965), pages 5–9.
- Tel Anafa: The Hellenistic Town*. Catalog of the exhibition, No. 1. Jerusalem: The Israel Museum, 1970.
- "Tell Ashdod, 1962," *Archeology*, volume 16, number 1 (March 1963), pages 61–62.
- "Tel Gamma," *Israel Exploration Journal*, volume 22 (1972), pages 245–246.
- "Tell Gemme," *Revue Biblique*, volume LXXIX (1972), pages 596–599.
- "Tel Gezer," *Israel Exploration Journal*, volume 22, number 4 (1972), pages 241–242.
- The Biblical Archeologist: Journal of the American Schools of Oriental Research*, volume XXXIV, number 3. (September 1971).
- Wade, William D. "The Skeletal Biology of Human Remains from Sites in the Lake Kainji Area of Nigeria," *West African Journal of Archeology*, volume 1 (January 1971), pages 61–85.
- Weinberg, Gladys D. "Hellenistic Glass from Tel Anafa in Upper Galilee," *Journal of Glass Studies*, volume XII (1970), pages 17–27.
- . "Jalameit el Asafna," *Revue Biblique*, volume LXXIV (1967), pages 88–90.
- Weinberg, Gladys, and Paul N. Perrot. "Jalameit el Asafna," *Revue Biblique*, volume LXXII (1965), pages 577–579.
- Weinberg, Saul S. "Tel Anafa—A Problem-Oriented Excavation," *Muse: Annual of Museum of Art and Archeology, University of Missouri*, No. 3 (1969), pages 16–23.
- . "Tel Anafa: The Second Season," *Muse: Annual of Museum of Art and Archeology, University of Missouri*, No. 4 (1970), pages 15–24.
- . "Tel Anafa: The Third Season," *Muse: Annual of the Museum of Art and Archeology, University of Missouri*, No. 5 (1970), pages 8–16.
- . "Tel Anafa—1972: The Fourth Season," *Muse: Annual of the Museum of Art and Archeology, University of Missouri*, No. 6 (1972), pages 8–18.
- . "Tel Anafa: The Hellenistic Town," *The Israel Exploration Journal*, volume 21 (1971), pages 86–109.
- Weinberg, Saul S., and Gladys D. Weinberg. "Further Investigation of Glass Factories in Western Galilee," *American Journal of Archeology*, volume 70 (1966), pages 196–197.
- . "Glass Factories in Western Galilee: Third Campaign," *American Journal of Archeology*, volume 71 (1967), pages 195–196.
- . "Roman Glass Factories in Western Galilee," *American Journal of Archeology*, volume 69 (1965), pages 177–178.
- Wendorf, Fred. *The Prehistory of Nubia*. 2 vols. Dallas: Fort Burgwin Research Center and Southern University Press, 1968.
- Wendorf, Fred, Rushdi Said, and Romuald Schild. "Egyptian Prehistory: Some New Concepts," *Science*, volume 169 (September 1970), pages 1161–1171.
- Wiseman, James. *Stobi: A Guide to the Excavations*. Beograd: University of Texas at Austin and National Museum of Titov Veles, 1973.
- Wiseman, James, and Djordje Mano-Zissi. "Excavations at Stobi, 1970," *American Journal of Archeology*, volume 75, number 4 (October 1971), pages 395–411.
- . "Excavations at Stobi, 1971," *American Journal of Archeology*, volume 76 (1972), pages 407–424.
- Wright, Robert B. "Archeologists Uncover Solomon's Gate," *Gettysburg College Bulletin*, pages 29–31.

## Astrophysics and Earth Sciences

- Bahcall, John N., and Neta A. Bahcall. "The Period and Light Curve of HZ Herculis," *Astrophysical Journal*, volume 178 (15 November 1972), pages L1-L4.
- Central Bureau for Astronomical Telegrams, International Astronomical Union. *Circular No. 2427*. Cambridge: Smithsonian Astrophysical Observatory, 28 July, 1972.
- Cuperman, S., and A. Harten. "The Evolution of a Multi-Phase Space Density Collisionless One-Dimensional Stellar System," *Astronomy and Astrophysics*, volume 16 (1972), pages 13-20.
- Cuperman, S., A. Harten, and Myron Lecar. "A Phase-Space Boundary Integration of the Ulasov Equation for Collisionless One-Dimensional Stellar Systems," *Astrophysics and Space Science*, volume 13 (1971), pages 411-424.
- Cuperman, S., S. Goldstein, and Myron Lecar. "Numerical Experimental Check of Lynden-Bell Statistics—II," *Monthly Notices of the Royal Astronomical Society*, volume 146 (1969), pages 161-169.
- Cuperman, S., A. Harten, and Myron Lecar. "The Collective Relaxation of Two-Phase-Space-Density Collisionless One-Dimensional Selfgravitating Systems," *Astrophysics and Space Science*, volume 13 (1971), pages 425-445.
- Davies, R.A. *The 1970 Eruption of Mt. Ulaaurin, New Britain*. Smithsonian Institution Center for Short-Lived Phenomena, May 1970.
- Goldstein, S. "On the Stability of an Encounterless Self-Gravitating Constant Density System," *Astrophysics and Space Science*, volume 13 (1971), pages 387-396.
- Goldstein, S., S. Cuperman, and Myron Lecar. "Numerical Experimental Check of Lynden-Bell Statistics for a Collisionless One-Dimensional Stellar System," *Monthly Notices of the Royal Astronomical Society*, volume 143 (1969), pages 209-221.
- International Astronomical Union, Commission 27. *Information Bulletin on Variable Stars, No. 750*. Budapest: Konkoly Observatory, 30 December, 1972.
- International Astronomical Union, Commission 27. *Information Bulletin on Variable Stars, No. 758*, Budapest: Konkoly Observatory, 25 January 1973.
- Kalnajs, Agris. "The Equilibria and Oscillations of a Family of Uniformly Rotating Stellar Disks," *Astrophysical Journal*, volume 175 (1 July 1972), pages 63-76.
- Smithsonian Institution Center for Short-Lived Phenomena. *Center for Short-Lived Phenomena, Annual Report, 1970*. Cambridge, Massachusetts, May 1971.
- "The Wise Observatory in Israel," *Sky and Telescope*, volume 43, number 2 (February 1972), pages 72-73.
- Watkins, Jeffrey A., and Orrin H. Pilkey. "Le sable des plages Tunisiennes," *Notes du Service Geologique*, volume 39 (1972), pages 3-41.

## Biological Sciences

- Aron, W., and R.H. Goodyear. "Fishes Collected during a Midwater Traweling Survey of the Gulf of Elat and the Red Sea," *Israel Journal of Zoology*, volume XVIII (1969), pages 237-244.
- Ben-Tuvia, A. "Revised List of the Mediterranean Fishes of Israel," *Israel Journal of Zoology*, volume XX (1971), pages 1-39.



- Ben-Tuvia, A., and A. Lourie. "A Red Sea Grouper *Epinephelus Taurina* Caught on the Mediterranean Coast of Israel," *Israel Journal of Zoology*, volume XVIII (1969), pages 245-247.
- Berwick, S. H., and P. A. Jordan. "First Report of the Yale-Bombay Natural History Society Studies of Wild Ungulates at the Gir Forest, Gujarat, India." *Journal of the Bombay Natural History Society*, volume 68, number 2 (August 1971), pages 412-423.
- Biely, A., M. Rakus, P. Robinson, and J. Salaj. "Essai de corrélation des formations miocenes au sud de la dorsale Tunisienne," *Notes du Service Géologique*, volume 38 (1972), pages 73-92.
- Black, Craig C. "A New Species of Merycopotamus (Artiodatyla: Anthracotheriidae) from the Late Miocene of Tunisia," *Travaux de Géologie Tunisienne: Formation Beglia No. 6*, Fascicule 2, pages 5-39.
- Bonaduce, Gioacchino, and Masoli, Mario. "Marine Ostracods of Tunisia," *Pubbl. Stazione Zoologica di Napoli*, volume 36 (1968), pages 458-470.
- Burch, J.B. "Cytological Studies of Pacific Land Snails," *Proceedings of the Symposium on Mollusca, Part II*, (1969), pages 616-625.
- . "The Chromosome Number of *Bulinus sericinus* from Ethiopia," *Malacological Review*, volume 2 (1969), pages 113-114.
- Burch, J.B., and G.K. Lindsay. "Taxonomic Groupings in the Lymnaeidae," *Bulletin of the American Malacological Union, Inc.*, March 1973, page 15.
- Burch, J.B., and P.T. LoVerde. "The Systematic Position of *Radix luteola* and Its Significance in Lymnaeid Systematics," *Bulletin of the American Malacological Union, Inc.*, March 1973, page 42.
- Burch, J.B., and C.M. Patterson. "The Systematic Position of the Athoracophoridae (Gastropoda: Euthyneura)," *Malacologia: Proceedings of 3rd European Malacological Congress*, volume IX, number 1 (1969), pages 259-260.
- Calderón, Cleofé E., and Thomas R. Soderstrom. "Morphological and Anatomical Considerations of the Grass Subfamily Bambusoideae Based on the New Genus *Maclurolyra*," *Smithsonian Contributions to Zoology*, number 11. Washington: Smithsonian Institution Press, 1973.
- Conservation in Tropical South East Asia*. Proceedings of the Conference on Conservation of Nature and Natural Resources in Tropical South East Asia, Bangkok, Thailand, 29 November—4 December 1965. (IUCN Publications new series No. 10, edited by Lee M. Talbot and Martha H. Talbot). Morges: IUCN with assistance of UNESCO and van Tienhoven Foundation, 1968.
- Dawson, Mary R. "Paleontology and Geology of the Badwater Creek Area, Central Wyoming," *Annals of Carnegie Museum*, volume 41, Article 7 (25 September 1970), pages 215-230.
- Desai, J.R. "The Gir Forest Reserve: Its Habitats, Faunal and Social Problems." An unpublished background paper for Second World Conference on National Parks, Yellowstone and Grand Teton National Parks, 18-27 September 1972.
- Eisenberg, John F., and Melvyn Lockhart. "An Ecological Reconnaissance of Wilpattu National Park, Ceylon," *Smithsonian Contributions to Zoology*, No. 101. Washington: Smithsonian Institution Press, 1972.
- Eisenberg, John F., and George M. McKay. "An Annotated Checklist of the Recent Mammals of Ceylon with Keys to the Species," *The Ceylon Journal of Science (Biological Sciences)*, volume 8, number 2 (February 1970), pages 69-99.
- Eisenberg, J.F., N.A. Muckenhirn, and R. Rudran. "The Relationship between Ecology and Social Structure in Primates," *Science*, volume 176, (26 May, 1972), pages 863-874.



- Eisenberg, John F., Charles Santiapilai, and Melvyn Lockhart. "The Study of Wildlife Populations by Indirect Methods," *The Ceylon Journal of Science (Biological Sciences)*, volume 8, number 2 (February 1970), pages 53-62.
- Fishelson, Lev. "Ecology of Coral Reefs in the Gulf of Aqaba (Red Sea) Influenced by Pollution," *Oecologia*, volume 12 (1973), pages 55-67.
- Fosberg, F.R. "*Emilia* (Compositae) in Ceylon," *Ceylon Journal of Science, Biological Sciences*, volume X, number 1 (April 1972), pages 61-69.
- Freitas, Y. M., and F. Fernandes, editors. *Global Impacts of Applied Microbiology, Third International Conference*. Bombay: University of Bombay, 1971.
- Gorman, G. C., V. Jovanovic, E. Nevo, and F.C. McCollum. "Conservative Karyotypes Among Lizards of the Genus *Lacerta* from the Adriatic Islands," *Genetika*, volume 2, number 2 (1970), pages 149-154.
- Govindan, K., and R. Natarajan. "Studies on some Neritidae (Neritacea: Archaeogastropoda) of the Coleroon Estuary, South India," *Malacological Review Proceedings Soc. Exp. and Descr. Malacol.*, volume II (1969), page 133.
- Gray, C.W., and A.P.W. Nettashinghe. "A Preliminary Study on the Immobilization of the Asiatic Elephant (*Elephas maximus*) Utilizing Etorphine (M-99)," *Zoologica: New York Zoological Society*, volume 55, number 3 (1970), pages 51-54.
- Greenwood, P.H. "Fish Fossils from the Late Miocene of Tunisia," *Travaux de Géologie Tunisienne: Formation Beglia No. 6*, Fascicule 2, pages 41-72.
- Grierson, A.J.C. "Critical Notes on the Compositae of Ceylon," *Ceylon Journal of Science, Biological Sciences*, volume X, number 1 (April 1972), pages 42-60.
- Guiglia, Delfa. "Sul genere *Myzinella* Guiglia (1959) Descrisione della femmina (Hymenoptera: Tiphidae)," *Bulletin de la Société Entomologique Suisse*, Band XLI, Heft 1, 2, 3 u.4 (November 20, 1968), pages 171-174.
- Halberg, Francine E., Franz Halberg, and Arthur C. Giese. "Estimation of Objective Parameters for Circannual Rhythms in Marine Invertebrates," *Rass. Neur. Veg.*, volume 23 (1969), pages 173-186.
- Halberg, Franz. "Physiologic Considerations Underlying Rhythmometry, with Special Reference to Emotional Illness," *Cycles Biologiques et Psychiatrie*, Symposium Bel-Air III, Genève, Septembre 1967, (1968), pages 73-126.
- Hughes, G.M., and B.N. Singh. "Gas Exchange with Air and Water in an Air-Breathing Catfish, *Saccobranchus* (= *Heteropneustes*) *fossilis*," *Journal of Experimental Biology*, volume 55 (1971), pages 667-682.
- Hulings, Neil C., editor. "Proceedings of the First International Conference on Meiofauna." *Smithsonian Contributions to Zoology*, number 76. Washington: Smithsonian Institution Press, 1971.
- Hulings, Neil C., and John S. Gray. "A Manual for the Study of Meiofauna." *Smithsonian Contributions to Zoology*, number 78. Washington: Smithsonian Institution Press, 1971.
- IUCN Eleventh Technical Meeting*. Papers and Proceedings, New Delhi, 25-28, November 1969. Vol 3. (IUCN Publications new series No. 19, edited by Fred M. Packard and Hugh F. I. Elliott) Morges: IUCN with the assistance of UNESCO, 1971.
- IUCN Eleventh Technical Meeting*. Papers and Proceedings, New Delhi, 25-28 November 1969. Vol IV. (IUCN Publications new series No. 20, edited by J. Cerovsky & T. Pritchard) Morges: IUCN with the assistance of UNESCO, 1971.
- Jainudeen, M.R., J.F. Eisenberg, and J.B. Jayasinghe. "Semen of the Ceylon Elephant, *Elephas maximus*," *Journal of Reproductive Fertility*, volume 24 (1971), pages 213-217.

- Kasinathan, R., and R. Natarajan. "Studies on Four Species of Theobaldius (Cyclophoridae: Mesogastropoda) from South India," *Malacological Review*, volume II (1969), pages 133-134.
- Kohn, Alan J. "A Visit to Okha," *Bios*, volume XL, number 1 (March 1969), pages 3-9.
- Kostermans, A.J.G.H. "A New Ceylonese Species of *Abarema* Pitt," *The Ceylon Journal of Science, Biological Sciences*, volume IX, number 2 (August 1971), pages 61-63.
- . "Novelties in Ceylonese Lauraceae," *Ceylon Journal of Science, Biological Sciences*, volume IX, number 2 (August 1971), pages 50-57.
- Kurt, Fred. "Elephant Survey in Ceylon," *Oryx, Journal of the Fauna Preservation Society*, volume IX, number 5 (September 1968), pages 364-365.
- "Little Spiderhunter, *Arachnothera longirostris* (Latham) in the Eastern Ghats," *Journal of Bombay Natural History Society*, volume 68, number 2 (29-11-1971), pages 454-455.
- Lourie, A., and A. Ben-Tuvia. "Two Red Sea Fishes, *Pelates Quadrilineatus* (Bloch) and *Crenidens Crenidens* (Forsskal) in the Eastern Mediterranean," *Israel Journal of Zoology*, volume XIX, number 4 (1970), pages 203-207.
- Löve, Askell. "IOPB Chromosome Number Reports XXXIV," *Taxon*, volume XX (November 1), pages 785-797.
- . "IOPB Chromosome Number Reports XXXVI," *Taxon*, volume XXI (May 1972), pages 333-346.
- Löve, Áskell, and Doris Löve. "Favargera and Gentianodes, Two New Genera of Alpine Gentianaceae," *Botaniska Notiser*, volume 125 (1972), pages 255-258.
- . "Vermeulenien—a New Genus of Orchids," *Acta. Bot. Neerl.*, volume XXI, number 5 (October 1972), pages 553-554.
- MacArthur, Robert H., Jared M. Diamond, and James R. Karr. "Density Compensation in Island Faunas," *Ecology*, volume 53, number 2 (1972), pages 330-342.
- Mathew, D.N. "A Review of the Recovery Data Obtained by the Bombay Natural History Society's Bird Migration Project," *Journal of Bombay Natural History Society*, volume 68, number 1 (15-9-1971), pages 1-21.
- . "A Review of the Recovery Data Obtained by the Bombay Natural History Society's Bird Migration Study Project," *Journal of Bombay Natural History Society*, volume 68, number 1 (15-9-71), pages 65-85.
- Meijer, Willem. "The Genus *Axinandra*-*Melastomataceae*: A Missing Link in Myrtales?" *Ceylon Journal of Science, Biological Sciences*, volume X, number 1 (April 1972), pages 72-74.
- . "Some Taxonomic and Nomenclatural Notes on *Vateria copallifera* (Retz.) Alston," *Ceylon Journal of Science, Biological Sciences*, volume X, number 1 (April 1972), pages 76-79.
- Mueller-Dombois, Dieter. "Crown Distortion and Elephant Distribution in the Woody Vegetations of Ruhana National Park, Ceylon," *Ecology*, volume 53, number 2 (1972), pages 208-226.
- . "Ecogeographic Analysis of a Climate Map of Ceylon with Particular Reference to Vegetation," *The Ceylon Forester*, (April 1969).
- Mueller-Dombois, D., and Malini Perera. "Ecological Differentiation and Soil Fungal Distribution in the Montane Grasslands of Ceylon," *Ceylon Journal of Science*, volume IX, number 1 (February 1971), pages 2-41.
- Munasinghe, N.L.R. "Seasonal Variation in the Distribution and Availability of Carangids ("Paraw" & "Parati") in the Wadge Bank," *Bulletin of the Fisheries*



- Research Station, Ceylon*, volume 20, number 2 (December 1969), pages 191–200.
- Natarajan, R. "Cytological Studies of Indian Mollusks: A Karyotype Study of Three Species of *Paludomus* (Cerithiacea: Mesogastropods)," *Malacological Review*, volume 2 (1969), page 13.
- . "Cytological Studies of Indian Mollusks (Archaeogastropoda: Neritimorpha)," *Malacologia: Proceedings of 3rd European Malacological Congress*, volume IX, number 1 (1969), pages 279–281.
- . "Cytological Studies of Indian Mollusks: Chromosomes of Some Opisthobranchs from Porto Novo, South India," *Malacological Review*, volume 3 (1970), pages 19–23.
- National Academy of Sciences. *Research Programs Constituting U.S. Participation in the International Biological Program*. Annual Report FY 1970, Report No. 4 of the U.S. National Committee for the IBP-Division of Biology and Agriculture. National Research Council, National Academy of Sciences. Washington, D.C.: 1971.
- Nevo, Eviatar, George Gorman, Michael Soule, Yung Yang Suh, Robert Clover, and Vojislav Jovanović. "Competitive Exclusion between Insular *Lacerta* Species (Sauria, Lacertidae): Notes on Experimental Introductions," *Oecologia*, volume X (1972), pages 183–190.
- Osborn, Dale F., and Karl V. Krombein. "Habitats, Flora, Mammals, and Wasps of Gebel 'Uweinat, Libyan Desert." *Smithsonian Contributions to Zoology*, number 11, Washington, D.C.: Smithsonian Institution Press, 1969.
- Patterson, C.M. "Chromosomes of Molluscs," *Proceedings of Symposium on Mollusca—Part II*, (1969), pages 635–686.
- . "Morphological and Cytological Studies of the Succineid Genus *Quickia* from India," *Malacological Review*, volume 3 (1970), pages 25–36.
- . "Parallel Evolution of Shell Characters in Succineids Inhabiting Waterfalls," *Bulletin of the American Malacological Union, Inc.*, March 1973, page 28.
- . "Taxonomic Studies of the Land Snail Family Succineidae," *Malacological Review*, volume 4 (1971), pages 131–202.
- . "Taxonomic Studies of the Succineidae (Gastropoda, Stylommatophora)," *Proceedings of Symposium on Mollusca—Part I*, (January 1968), pages 46–50.
- Por, F.D. "Limnology of the Heliothermal Solar Lake on the Coast of Sinai (Gulf of Eilat)," *Verh. Internat. Verein. Limnol.*, volume 17 (1969), pages 1031–1034.
- . "One Hundred Years of Suez Canal—A Century of Lessepsian Migration: Retrospect and Viewpoints," *Systematic Zoology*, (1969), pages 138–159.
- . "The Canuellidae (Copepoda, Harpacticoida) in the Waters Around the Sinai Peninsula and the Problem of "Lessepsian" Migration of this Family," *Israel Journal of Zoology*, volume XVIII, (1969), pages 169–178.
- . "The Zoobenthos of the Sirbonian Lagoons," *Rapp. Comm. int. Mer Medit.*, volume 20, number 3 (1971), pages 247–249.

## Museum Programs

- Hamarneh, Sami. "A History of Arabic Pharmacy," *Physis*, Anno XIV, Fascicule I (1972), pages 5–54.
- . "Pharmacy in Medieval Islam and the History of Drug



- Addiction," *Medical History*, volume XVI, number 3 (July 1972), pages 226–237.
- . "Some Aspects of Medical Practice and Institutions in Medieval Islam," *Episteme*, volume VII, number 1 (January, February, March 1973), pages 15–31.
- Powell, N.A. "Indo-Pacific Bryozoa New to the Mediterranean Coast of Israel," *Israel Journal of Zoology*, volume XVIII, (1969), pages 157–168.
- Pulawski, Wojciech. "*Miscophus heliophilus* sp. n. (Hym., Sphecidae)," *Bulletin Entomologique de Pologne*, volume XXXVIII/2, (30 June 1968), pages 285–287.
- "Recovery of a Spotbill Duck (*Anas Poecilorhyncha*) in U.S.S.R.," *Journal of Bombay Natural History Society*, volume 68, number 1 (15–9–1971), pages 244–246.
- "Recovery of Ringed Birds," *Journal of Bombay Natural History Society*, volume 66, number 3 (20–6–70), pages 625–632.
- "Recovery of Ringed Birds," *Journal of Bombay Natural History Society*, volume 68, number 1 (15–9–1971), pages 249–273.
- Robyns, A. "Un Botaniste à Ceylon," *Les Naturalistes Belges*, (1970), pages 170–202.
- Said, Ruchdi, Claude Albritton, Fredi Wendorf, Romuald Schild, and Michael Kobusiewicz. "A Preliminary Report on the Holocene Geology and Archaeology of the Northern Fayum Desert."
- Sohn, I. G. *Triassic Ostracodes from Makhtesh Ramon, Israel*. Ministry of Development, Geological Survey Bulletin No. 44. Jerusalem: Ministry of Development, Geological Survey. April 1968.
- Springer, Victor G., and William F. Smith-Vaniz. "Mimetic Relationships Involving Fishes of the Family Blenniidae." *Smithsonian Contributions to Zoology*, No. 112. Washington, D.C.: Smithsonian Institution Press, 1972.
- Steinitz, Heinz. "Remarks on the Suez Canal as Pathway and as Habitat," *Rapp. Comm. int. Mer. Médit.*, volume XIX, number 2 (1968), pages 139–141.
- Stirn, J., editor. *Marine Fauna of the North Adriatic: Catalogue No. 1*. Scientific Works and Reports of the University of Ljubljana. Marine Biological Station, Portoroz, No. 7. Portoroz: 1971. (Mimeographed).
- "Tel Gamma," *Israel Exploration Journal*, volume 22 (1972), pages 245–246.
- "Tel Gezer," *Israel Exploration Journal*, volume 22, number 4 (1972), pages 241–242.
- "Tell Gemmei," *Revue Biblique*, volume LXXIX (1972), pages 596–599.
- Theobald, William L. "Notes on the Bignoniaceae," *Ceylon Journal of Science, Biological Sciences*, volume X, number 1 (April 1972), page 75.
- Theobald, William L., and Donald A. Grupe. "A New Name and Combinations in the Gesneriaceae," *Ceylon Journal of Sciences, Biological Sciences*, volume X, number 1 (April 1972), pages 70–71.
- Tirmigi, Nasima M., and Raymond B. Manning. "Stomatopod Crustacea from West Pakistan," volume 125, number 3666 of *Proceedings of the United States National Museum*. Washington, D.C.: Smithsonian Institution Press, 1968.
- Travaux de Géologie Tunisienne: Formation Beglia No. 5*, Fascicule 1. Tunis: Notes du Service Géologique, No. 37, April 1972.
- Tsurnamal, M. "Sponges of Red Sea Origin on the Mediterranean Coast of Israel," *Israel Journal of Zoology*, volume XVIII (1969), pages 157–168.
- Westheide, Wilfried. "*Apharyngtus punicus* nov. gen. nov. spec., ein aberranter Archiannelide aus dem Mesopsammel der tunesischen Mittelmeerküste," *Mikrofauna des Meeresbodens*, volume VI (1971), pages 233–249.

- . "Spermatodesmen," *Die Naturwissenschaften*, Heft 12, (1969 [56. Jahrgang]), pages 641–642.
- Westheide, W., and D. Bunke. "*Aeolosoma maritimum* nov. spec., die erste Salzwasserart aus der Familie Aeolosomatidae (Annelida: Oligochaeta)," *Helgoländer wiss. Meeresunters*, volume 21 (1970), pages 134–142.
- Wiseman, James. *Stobi: A Guide to the Excavations*. Beograd: University of Texas at Austin and National Museum of Titov Veles, 1973.

## Appendix 7

### PUBLIC AFFAIRS

#### News Releases Issued

Smithsonian Drug Exhibit Honored as "Pacesetter"	10 July 72
Dazzling Money Display on View at Smithsonian	11 July 72
Historic Presses Roll at Smithsonian	13 July 72
Statement on the Death of the King of Bhutan	24 July 72
Archeologist Wendell Phillips Will Lecture	25 July 72
Survey of American Portraiture	26 July 72
Exhibit Shows New England Textile Mills	26 July 72
Abundant Hydrogen May Provide Fuel	27 July 72
Appointments of Two Educators to NPG	27 July 72
Photography for Teenagers	28 July 72
Parisian Playbills from 1890's at Renwick Gallery	28 July 72
Naughty Movies—History Museum Shows "Peepshows"	28 July 72
Notice To Calendar Editors	1 Aug. 72
Animal, Human Sculptures By Austrian	2 Aug. 72
Stamp and Lecture Mark Century of Mail-Order	3 Aug. 72
Underdrawing For Ben Shahn on View	3 Aug. 72
Portrait of Black American Tragedian Acquired	4 Aug. 72
Popular Exhibition of Political Also-Rans Extended	4 Aug. 72
Special to Virginia Cardinal	7 Aug. 72
Special to the Washingtonian Magazine	9 Aug. 72
Olympic Stamps in Smithsonian Show	9 Aug. 72
Associates Will Show "New American Filmmakers Series"	10 Aug. 72
National Portrait Gallery Announces Future Schedule	11 Aug. 72
Smithsonian Seeks Volunteer Teachers	14 Aug. 72
Special Exhibition of Women's Portraits Displayed	15 Aug. 72
Discussions of Drug Use in Non-Western Cultures	17 Aug. 72
Booklet Tells Story of Dr. Morse's Indian Root Pills	18 Aug. 72
Wilson Center Sets Oct. 1 Deadline for Applications	21 Aug. 72
Election Show at Puppet Theater Is Fall Offering	21 Aug. 72
"Shadow" of Stone Age Man on Display	25 Aug. 72
"Event of the Century" From Fiasco to Triumph	25 Aug. 72
Parlor Pieces of Stephen Foster	28 Aug. 72
Anacostia Museum Marks 5th Birthday	28 Aug. 72
Sampling Indicates Oyster Kill Over	29 Aug. 72
Class on International Filmmakers	31 Aug. 72
Associates to Present Improvisational Theater	31 Aug. 72
Associates Offer D.C. Premiere of Whitney Film Series	31 Aug. 72



Smithsonian Returns to 5:30 Closing Time	31 Aug. 72
Associates Offer Performance, Lecture Series	31 Aug. 72
John Magruder, SI Official, Drowns in Massachusetts	3 Sept. 72
Visit to Goddard Space Center	6 Sept. 72
Photo Show Contrasts Inner City With Rural Vermont Images	7 Sept. 72
"The Hand and the Spirit" Religious Theme in American Art	7 Sept. 72
1870's Not Good Old Days	7 Sept. 72
Classes for Fall Have New Early Starting Time	7 Sept. 72
Construction to Start on National Air and Space Museum	11 Sept. 72
19th C. Religious Lithographs on View	11 Sept. 72
Smithsonian Ups Volume on FM Radio Pioneer	11 Sept. 72
Air Force Art on Exhibition	12 Sept. 72
Associates to Present "Women at Work" Lectures	12 Sept. 72
Series of Lectures on Man and Cosmos to be Presented	12 Sept. 72
Wilson Center Names Dozen New Fellows	18 Sept. 72
Dr. Monroe E. Freeman—Obituary	18 Sept. 72
Portraits of Black Americans Loaned to Push Expo '72	19 Sept. 72
Balasaraswati, India's Greatest Dancer will Perform	20 Sept. 72
Doc & Merle Watson to Inaugurate Guitar Concert Series	20 Sept. 72
Smithsonian Will Present Marlboro Concert Oct. 28	20 Sept. 72
Advance Calendar of Concerts To Be Presented	20 Sept. 72
Lecture, Quilting Bees Scheduled—Antique Quilts	20 Sept. 72
New Pompeiian Frescoe Discoveries	20 Sept. 72
Smithsonian Recalls Long Battle for Vote	20 Sept. 72
News Hall Named for Henry Luce of Time Inc.	21 Sept. 72
Weekly Art Program on WGMS	21 Sept. 72
Smithsonian To Present Jazz Heritage Concerts	21 Sept. 72
Vera Posters on Sale	21 Sept. 72
Bust of Martin Luther King, Jr. Owned by NPG	25 Sept. 72
Freer Lecturer to Focus on Shrine at Samarkand	25 Sept. 72
Viola Anthropology Archivist	25 Sept. 72
Young People's Tour of Chesapeake Bay Research	26 Sept. 72
Photos of Indonesia To Be Shown at Smithsonian	27 Sept. 72
Kinematic Sculptures Show Extended at Smithsonian	29 Sept. 72
SI, Tonka Sign Contract for Line of Educational Products	2 Oct. 72
Doubleday Lectures To Examine Effects of Technology	10 Oct. 72
Benefit "Darwin Adventure" Premiere	12 Oct. 72
First Showing of World's Third Largest Diamond	13 Oct. 72
Associates Offering Children's Programs	18 Oct. 72
Anniversary Exhibit Honors American Sculptor Solon Borglum	18 Oct. 72
Hall and Lecture Mark 125 Years of U.S. Stamps	19 Oct. 72
Abigail McCarthy to Address Associates Luncheon	20 Oct. 72
Smithsonian To Present Camerata Chorus Concert	20 Oct. 72
Free Film Theatre—Nov. Schedule	26 Oct. 72
Ornette Coleman Performs in 2nd Jazz Heritage Concert	26 Oct. 72
Exhibition of "The Lazzaroni," 19th Century Scientists	27 Oct. 72
Exhibition Revives "Pop" Hart Art	27 Oct. 72
Highlights of Articles in 'Smithsonian Research Reports'	27 Oct. 72
Freer Lecturer To Discuss Japanese Woodblock Art	27 Oct. 72
Get to Know an Oriental Rug	27 Oct. 72
Science Information Exchange Produces Two Volumes	27 Oct. 72
Poet Allen Ginsberg To Read	30 Oct. 72

Revival of 18th Century Opera-Ballet	30 Oct. 72
Fact Book Puts Drugs in Perspective	31 Oct. 72
SAO Director to Retire, Field Named as Successor	1 Nov. 72
Writer Details Iks' Loss of Humanity	3 Nov. 72
Gregg Smith Singers To Perform at Renwick	6 Nov. 72
Chinese Shadow Puppets	6 Nov. 72
Relics and Tunes of 1776	7 Nov. 72
NPG Announces Additions to Exhibition Schedule	7 Nov. 72
Prince Diskul to Lecture on Ancient Thai Sculpture	7 Nov. 72
Portraits of Harlem Renaissance Figures	8 Nov. 72
NCFA to Show Recent Print	8 Nov. 72
Air Museum Groundbreaking	9 Nov. 72
Bust of Poet Ezra Pound, Dead at Eighty-seven	9 Nov. 72
"Character of Old West"	13 Nov. 72
Philately Lecture to Accompany Slides	13 Nov. 72
Art Exhibition Traces Book's Creation	14 Nov. 72
Smithsonian Breaks Ground for Air and Space Museum	14 Nov. 72
Background National Air and Space Museum	14 Nov. 72
Fact Sheet National Air and Space Museum	15 Nov. 72
Annual Archeological Lecture Focus on Greek Sculpture	16 Nov. 72
Animal Welfare Institute Medal to Russell Train	17 Nov. 72
Postal Hall, Marks 125 Years of U.S. Stamps	21 Nov. 72
Music of Romanian Composer to Have U.S. Premiere	21 Nov. 72
Modern Jazz Quartet to Perform—Jazz Heritage Series	21 Nov. 72
250-Million-Year-Old Pest	21 Nov. 72
Smithsonian Expert Wins Stamp Award	24 Nov. 72
Medieval European Tower Clock Installed	24 Nov. 72
Associates Offer Bach and Brunch	24 Nov. 72
The Washington Dance Theater—Erika Thimey, Director	29 Nov. 72
Dr. Paul B. Sears Receives Browning Award at Smithsonian	1 Dec. 72
First Daguerreotype Taken of Thoreau Given to NPG	4 Dec. 72
100 Brazilian Baroque Art Objects To Be Exhibited at Renwick Gallery	5 Dec. 72
Reception, Films, Lecture, Concert to Celebrate Exhibit of Brazilian Baroque Art at Renwick Gallery	5 Dec. 72
1973 Festival of American Folklife To Be Along Greensward of the Lincoln Memorial	6 Dec. 72
India Provides Theme for Smithsonian Ball	6 Dec. 72
Smithsonian Displaying Watercolor Butterflies	6 Dec. 72
Associates Offer 2nd Series of Kennedy Center Shows, Talks	6 Dec. 72
Associates Course To Take Participants "Inside Museums"	7 Dec. 72
NCFA Will Mount Installation of Modern Paintings, Sculptures	8 Dec. 72
Caroling at Smithsonian	8 Dec. 72
Exhibit Traces Remarkable Career of Smithsonian's First Secretary	12 Dec. 72
Associates Offer Wide Variety of Winter Courses	12 Dec. 72
"If We're So Good, Why Aren't We Better": Smithsonian Exhibition Defines Productivity	13 Dec. 72
Puppet Theatre To Open New Stage Dec. 20 With Russian Fairy Tales	13 Dec. 72
19th Century Scientists Faced Challenge of a New Era	13 Dec. 72
Contract Signing Ceremony December 18 at the SI	13 Dec. 72
Associates Plan Wide Range of Activities for Children	13 Dec. 72

Walter Hopps Named Visiting Curator by NCFA	14 Dec. 72
Smithsonian, AAAS Cooperation	15 Dec. 72
Dr. Kier Named Director of Natural History Museum	15 Dec. 72
Associates Offer Ten Views of Nation's Capital	18 Dec. 72
Thad Jones-Mel Lewis Quintet to Perform	21 Dec. 72
Anacostia Museum to Show Works by D.C. Art Association Members	21 Dec. 72
Unknown 19th Century Artist Being Accorded 1st U.S. Exhibition by National Collection	21 Dec. 72
Four Students Tour Poland	21 Dec. 72
Irving Berlin Gives "White Christmas" Piano to SI	22 Dec. 72
Jimmy Dawkins To Perform in American Guitar Series	26 Dec. 72
President Harry S. Truman	27 Dec. 72
Freer Lecturer To Discuss Chinese "Boundary Painting"	29 Dec. 72
Little Known of Sea Cow, Huge Now-Extinct Mammal	3 Jan. 73
Experimental Theatre Group to Perform	3 Jan. 73
"Inauguration Story" To Open Saturday Series at MHT	4 Jan. 73
Marlboro Musicians To Appear at Smithsonian February 3	5 Jan. 73
505 Historic, Modern Objects for Preparing Food at Renwick Gallery	9 Jan. 73
Smithsonian To Present Concert of Orchestrated Ragtime	9 Jan. 73
NCFA To Present 4 Free Lectures on 19th Century American Art	10 Jan. 73
Art from New York Prison To Be Exhibited at NCFA	10 Jan. 73
Jack Johnson Film—New Filmmakers Series	10 Jan. 73
Women in the Arts, Government, Sciences-Luncheons	11 Jan. 73
New Tour Program Set by National Portrait Gallery	11 Jan. 73
Senator Jackson Named to Board of Regents	12 Jan. 73
Free Lecture on Brazilian Baroque Art To Be Given at Renwick Gallery January 10	15 Jan. 73
Neurobiology Topic of Lecture Series	16 Jan. 73
2 Leading Brazilian Musicians To Give Recital at Renwick Gallery February 1	16 Jan. 73
Orchestra, Choir Will Present Concert of 18th Century Brazilian Church Music	16 Jan. 73
Smithsonian Marks Centennial of Grant's 2nd Inaugural	16 Jan. 73
Five Food Lectures To Be Given at Renwick Gallery	16 Jan. 73
Smithsonian Seeks Names for Indian Biographical Dictionary	19 Jan. 73
Woodrow Wilson Center Appoints New Scholars	21 Jan. 73
Wilson Center Sets New Schedule for Applications, Appointments	22 Jan. 73
Smithsonian Offers Two Views of Graffiti	22 Jan. 73
Smithsonian Official Receives ASCAP Award for Music Criticism	22 Jan. 73
President Johnson's Favorite Portrait of Himself Is Placed on Display in National Portrait Gallery	23 Jan. 73
Environmental Law Conference To Be Held at Smithsonian	26 Jan. 73
Rep. Minshall Named To Board of Regents	30 Jan. 73
Freer Lecturer To Discuss Ottoman Book of Festivals	31 Jan. 73
American Indian Theatre Ensemble To Perform 2 Plays	5 Feb. 73
British Biologist Medawar To Speak on Technology and Evolution Feb. 15	9 Feb. 73
S. Dillon Ripley—Biography	9 Feb. 73
Al Carmines Will Perform His Music at Smithsonian	9 Feb. 73



Smithsonian Scientists Begin Analysis of Samples From Final Apollo Mission	9 Feb. 73
Smithsonian, Drug Abuse Council To Sponsor "Altered States of Consciousness" Conference	12 Feb. 73
Smithsonian Names James Mello Assistant Director of Museum	13 Feb. 73
International Symposium To Mark 500th Birthday of Copernicus	13 Feb. 73
Trial of John Brown Presented by NPG Education Staff in Schools	14 Feb. 73
Docent Training Program Underway at NPG	14 Feb. 73
Smithsonian Associates Coming To Howard County	15 Feb. 73
NCFA Will Survey Career of Pioneer Modern Artist Maurer	16 Feb. 73
Polish Art Historian To Speak at Natural History Museum	20 Feb. 73
Smithsonian Puts First Ruling Engine by Physicist Henry Rowland on Display	22 Feb. 73
Anacostia Museum To Present Young People's Arts Festival	22 Feb. 73
Films on Middle East To Be Shown at Freer	22 Feb. 73
Associates Offer Antiquing Tours	22 Feb. 73
Associates Presenting Lecture Series on African Sculpture, Music & Dance	22 Feb. 73
Sonny Rollins To Perform in Smithsonian Concert	22 Feb. 73
Contemporary Japanese Dancers Will Perform at SI	22 Feb. 73
Smithsonian Mall Museums Add Summer Evening Hours	23 Feb. 73
Hirshhorn Staff Using Unusual Approach to Design Opening Exhibit Installation	26 Feb. 73
Chaim Goldberg Lends Works for Exhibit at Smithsonian	27 Feb. 73
Freer Lecturer Will Discuss "Tales of Ise" Illustrations	28 Feb. 73
James Beard, Joyce Chem, 3 Other Food Experts Will Present Free Lectures at Renwick Gallery	28 Feb. 73
Portrait of F. Scott Fitzgerald Added to NPG	28 Feb. 73
Smithsonian Receives Model of EXXon Tanker <i>Manhattan</i>	1 March 73
Legendary Passionflower Offers Religious Symbol, Food	1 March 73
Tiny Grimes, Jim Hall Will Close SI Guitar Concert Series	5 March 73
Daniel Boorstin Will Give Up Directorship of Museum To Devote More Time To Writing	8 March 73
Arthur Clarke Final Speaker in Doubleday Lecture Series	9 March 73
Last Series of Bonestell Space Paintings on Display	9 March 73
Annual Kite Contest March 24 at Monument	12 March 73
Chaplin Bust Added to NPG Collections	12 March 73
Marlboro Musicians Will Present Chamber Concert at SI	12 March 73
Day of Free Talks and Demonstrations on Food Scheduled at Renwick Gallery	13 March 73
Renwick Gallery Exhibition To Survey Contemporary Painting Scene in India	14 March 73
To: Washington Area Film Critics	15 March 73
Photos of Tropical Blossoms on Exhibit at Smithsonian	16 March 73
Smithsonian Preparing Educational Slide Sets	16 March 73
Freer Gallery To Celebrate 50th Anniversary of Opening	19 March 73
Portrait of Girl Scout Founder Given to NPG	20 March 73
Smithsonian Exhibits Drawings of Coal Breakers, Train Depots	21 March 73
Paper Bag Players To Perform at Smithsonian April 11-15	21 March 73
Top Entries in National Print, Drawing Contest To Be Shown at NCFA	21 March 73
'Get Acquainted With Associates' Program in Columbia March 26	21 March 73

Memo to Editors: Art Work by Foster Children	22 March 73
"Copernican Century" Exhibit To Feature Renaissance Treasures of Science and Art	22 March 73
Listen My Children and You Shall Hear the Truth of the Ride of Paul Revere	23 March 73
Associates Theater Series Offers Performances, Meetings with Casts	23 March 73
Associates Spring Courses Range from Art to Altered Consciousness	23 March 73
Alice in Wonderland To Open at Puppet Theatre	23 March 73
New Search Service Makes Available Reports on 400,000 Research Projects	23 March 73
Wilson Center Conference May 2 Will Consider "New Federalism"	27 March 73
Poets To Read Their Works in New Associates Series	29 March 73
NPG Unveils Comprehensive Pictorial Display of Black History in Revolutionary War Period	2 Apr. 73
Turkish Humanist Poetry of Yunus Emre Will Be Discussed at Freer	3 Apr. 73
Air Museum Exhibit To Honor Champion U.S. Aerobatic Team	3 Apr. 73
"American Authors" Exhibition Displays Portraits of Literary Figures from 18th Century To Present	3 Apr. 73
Freer Lecturer Will Discuss Chinese Painting Composition	4 Apr. 73
Film on Nez Perce Indians in First Public Showing	5 Apr. 73
Henry R. Luce Hall of News Reporting Opens May 1 in Smithsonian's Museum of History and Technology	9 Apr. 73
Smithsonian Exhibit Shows Role, Production of Synthetic Crystals	9 Apr. 73
Book Suggests Tropical Rain Forests Can Never Support Large Populations	9 Apr. 73
Portrait Bust of Sam Rayburn Presented in Special Ceremony	12 Apr. 73
Copernicus Stamp To Be Released in Ceremonies at SI	16 Apr. 73
Demonstration of Project Seed Will Highlight Education Day	17 Apr. 73
Press Conference: Werner Heisenberg	17 Apr. 73
International Symposium on Scientific Discovery Opens April 22 at Smithsonian, National Academy	17 Apr. 73
Smithsonian Touring Performances Offer Insight and Entertainment	18 Apr. 73
New Frontiers in Science Communications	18 Apr. 73
Smithsonian Will Circulate 14 New Exhibits this Spring	19 Apr. 73
Copernicus Telescope on Display April 22-26 for Copernicus Week	19 Apr. 73
Designer of Wall-Coverings To Present Two Free Lectures at Renwick Gallery	20 Apr. 73
Dusseldorf Academy Art Is Subject of NCFA Exhibition	20 Apr. 73
Sculptor George Rickey Will Lecture at NCFA	20 Apr. 73
Actress Eugenia Rawls To Present Solo Dramatic Portrait of Tallulah Bankhead	20 Apr. 73
Note to Editors and Writers: Japanese Ukiyoe Paintings	23 Apr. 73
Fashion Writer Eleni Epstein Will Give Luncheon Lecture	23 Apr. 73
Top D.C. Public High School Prints To Be Shown at NCFA	23 Apr. 73
Renwick Gallery To Exhibit Antique American Coverlets	23 Apr. 73
Ralston Crawford Exhibition Planned at NCFA	24 Apr. 73
About American Coverlets	24 Apr. 73
NCFA Plans See-and-Do Day for Children on May 19	26 Apr. 73
The Freer Gallery of Art	27 Apr. 73
Wilson Center Annual Report Reveals Bicentennial Plans	27 Apr. 73

Renwick Becomes Historic Landmark in Ceremonies May 4	1 May 73
Smithsonian Will Stage First Anthropological Film Conference	1 May 73
Four Panelists To Share Views on What Washington Should Be	2 May 73
New National Portrait Gallery Fellowship Program Announced	7 May 73
NCFA Will Exhibit 20 Aerial Blow-ups by Los Angeles Photographer	7 May 73
NCFA To Show Exploratory Prints by Three	8 May 73
Decorative Arts from Period 1876–1916 Will Be Exhibited at Renwick Gallery	8 May 73
Botanist W. Andrew Archer Dies, Worked for Agriculture, Smithsonian	10 May 73
July Fourth Set as Date for Opening of Exhibition Titled: The Black Presence in the Era of the American Revolution 1770–1800	10 May 73
Beware of Frog Legs with Extra “Kick”	10 May 73
Smithsonian Conference Considers Long-Range Goals for Institution	11 May 73
Boomerangs Make Annual Return to Smithsonian	14 May 73
Gregg Smith Singers Will Perform Music of “Sentimental Ages” at Renwick June 5	14 May 73
Live Ants, Cockroaches, Termites, Spiders Among Delights of Smithsonian Insect Zoo	14 May 73
Smithsonian Receives \$50,000 in Gifts for Maritime Hall	14 May 73
Editors Advisory: Zoo Press Conference	14 May 73
Hugo Black’s Effects Join Supreme Court Memorabilia	14 May 73
Smithsonian Institution Adopts Policy of Museum Acquisitions	16 May 73
Press Preview: Arts and Crafts Movement in America	16 May 73
Princeton Scholar To Give Illustrated Talk at Renwick Gallery on Prairie Architecture	17 May 73
National Zoological Park—Master Plan Components	18 May 73
National Zoological Park—Master Plan Design Concepts	18 May 73
1973 Festival of American Folklife Scheduled for Lincoln Memorial Site	18 May 73
Statement by George Meany, President, AFL–CIO	18 May 73
Statement by Paul J. Fasser, Department of Labor	18 May 73
Press Conference—1973 Festival of American Folklife	18 May 73
Smithsonian Guidebook To Go on Sale June 1	21 May 73
Kentuckians To Bring Traditions of Bluegrass State To Mall July 4–8	23 May 73
Chicago’s Museum of Contemporary Art Organizes Exhibit for Tour of Key Latin American Cities	24 May 73
Summer Associates Series To Feature Wolf Trap Performances, Discussions	24 May 73
Editors Advisory: 101st Birthday Party	25 May 73
Edward K Thompson, <i>Smithsonian</i> Editor, To Receive Henry Medal	29 May 73
Major NCFA Exhibition Being Accorded Forgotten 19th Century Woman Artist	29 May 73
Lewis A. Lapham Named Chairman of Smithsonian Associates Board	30 May 73
Smithsonian and Harvard To Establish Center for Astrophysics July 1	31 May 73
Dance Theatre To Perform “Aesop’s Fables” June 16	31 May 73
Exhibit Shows Memorabilia of Presidential Funerals	5 June 73



Smithsonian Publishes Catalog of Ultraviolet Stars	5 June 73
Concerts Will Present 18th Century Italian Music in Modern Premieres	5 June 73
Freer Gallery Will Open Exhibition on Chinese Figure Painting Sept. 12	5 June 73
Numismatists Receive Smithsonian's Gold Medal for Exceptional Service	7 June 73
Freer Gallery To Show Turkish Art Exhibition	7 June 73
Editor's Advisory: Indian Pottery Demonstrations	8 June 73
Workers Who Build Our Shelters Will Show How on National Mall	12 June 73
NSF Grant Will Support Study of Bay's Rhode River Watershed	14 June 73
Federal City College Will Present Anniversary Exhibit at NCFA	14 June 73
Yugoslavs, Serbian & Croatian-Americans Will Present "Tribute to Tamburashi"	14 June 73
NCFA Exhibition Organized by Walter Hopps Surveys Directions in Representational Art	15 June 73
Thursday Evening Hours Are Added by Smithsonian's Renwick Gallery	18 June 73
Folklife Festival To Feature Three Days of Gospel Music	18 June 73
Statement by Dr. Robert A. Brooks—Johnson-Sea-Link	20 June 73
Associates Offer Wide Range of Summer Class Subjects	20 June 73
Wilson Center Board Selects 10 Fellows	20 June 73
Smithsonian Names Review Panel to Investigate Sea-Link Tragedy	20 June 73
Johnson-Sea-Link	21 June 73
Northern Plains Indians Will Be Featured "Native Americans" at Folklife Festival	21 June 73
Smithsonian Adds Two Members to Panel Probing Sea-Link Tragedy in Florida	22 June 73
Robert S. Burke Jr. Will Direct Smithsonian Protection Services	26 June 73
Editors Advisory: Press Preview—Folklife Festival	26 June 73
2,500 Parking Spaces Made Available for Festival of American Folklife	27 June 73
Smithsonian, Wolper Sign Agreement for Series of Television Specials	27 June 73
Grant From ARBC Will Help Promote Foreign Participation in Festival	29 June 73

### "Radio Smithsonian" Programs

JULY 1972

- "The World of Ants." Ronald Goor of the National Museum of Natural History describes the complex lifestyle of ants. "Exploring Oriental Art." with Harold Stern, Director of the Freer Gallery of Art.
- "Concert," featuring Sebastian Kelber, recorder; Lane Anderson, cello; and James Weaver, harpsichord.
- "The Megastates of America." Journalist Neal Peirce, a fellow of the Woodrow Wilson International Center for Scholars, discusses our ten most populous states—their similarities and differences.
- "Folk Concert," featuring British singers David and Toni Arthur and John Harrison.

"Understanding Drugs." A look at the drug scene today, as reflected in the Smithsonian's newest exhibit on drugs.

#### AUGUST 1972

"The New Deal Art Projects." A look at one of the most important influences on 20th century American art. The history of the projects is explored by Francis O'Connor and Jacob Kainen of the NCFA. Then Karel Yasko, Director of the Fine Arts Preservation Office, General Services Administration, and Joshua Taylor, Director of the NCFA, discuss plans for preserving New Deal art.

"Around the Blues." Martin Williams, Director of the Smithsonian's Jazz Program, explores the influence of the blues on American music.

"70 Years at the Smithsonian." Dr. Charles Greeley Abbot, former Secretary of the Smithsonian who recently celebrated his 100th birthday, recalls some of his experiences at "the nation's attic."

"The Right to Vote." A look at voting rights in the United States since the country's early years. "What Can Fossils Tell Us?" with Dr. Frank Whitmore, a paleontologist at the National Museum of Natural History who specializes in whale fossils.

#### SEPTEMBER 1972

"The Importance of Continental Drift." Nicholas Hotton and Erle Kauffman, paleontologists at the National Museum of Natural History, discuss the effects which continental drift might have had on living things.

"Exploring Queen of Sheba Land." Archeologist Wendell Phillips tells of his adventurous expeditions to the sand-covered Old Testament cities of Southern Arabia. "Too Busy Having Fun," Mrs. Alice Roosevelt Longworth, daughter of Theodore Roosevelt, reminisces about her days in the White House.

"The 1972 Festival of American Folklife, Part I." A sampling of the people and music that make the Folklife Festival one of the Smithsonian's most popular events.

"The 1973 Festival of American Folklife, Part II."

#### OCTOBER 1972

"Anniversary in Anacostia." John Kinard, Director of the Anacostia Neighborhood Museum in Washington, talks about the Museum's first five years and the prospects for neighborhood museums in other cities. "The Expanding National Gallery," Director Carter Brown and Melvin Edelstein, its Chief Librarian, discuss plans for the gallery's growth.

"Drilling for the Past." A look at the earth's past, as revealed by core samples from below the ocean floor.

"Songs of Stephen Foster." Some familiar, and some that are not so familiar, from an album recorded at the Smithsonian.

"Reading is FUNdamental." A look at the program designed to bring books to all people, with its founder, Mrs. Robert McNamara. "Counterfeiting in History," with Mrs. Elvira Clain-Stefanelli, Curator of Numismatics at the Smithsonian.

"Recent Developments in Jazz," with Martin Williams, noted jazz critic and Director of the Smithsonian's Jazz Program.

## NOVEMBER 1972

- "First Through the Sound Barrier." A conversation with General Charles Yeager, pilot of the first supersonic flight in 1947. "Copernicus and the Sun." Dr. Owen Gingerich of the Smithsonian Astrophysical Observatory talks about the great Polish astronomer, whose 500th birthday will be celebrated in 1973.
- "Concert," featuring earthy and romantic music of the Middle Ages, performed by Les Menestriers, a young group which recently won the French grand prize for recording.
- "The Military Today and Tomorrow." A discussion featuring Albert Meisel, Deputy Director of the Woodrow Wilson International Center for Scholars, and Stuart Loory and Lieutenant Colonel William Houser, both Fellows at the Center.
- "The Secrets of Mars," discussed by Dr. Carl Sagan of Cornell University and Dr. Brian Mason of the National Museum of Natural History. "The Good Side of Bats." Dr. Edward Ayensu of the Museum of Natural History explains some positive functions performed by bats.

## DECEMBER 1972

- "The American Novel Today." A discussion with Saul Bellow, author of *Herzog* and *The Adventures of Augie March*.
- "A New Air and Space Museum." A preview of the new home for the National Air and Space Museum, now being erected in Washington. "A Nostalgic Look at Carousels," with Barbara Charles, an expert on the history of merry-go-rounds.
- "Concert," featuring the music of Washington composer Robert Evett, performed by the Madison Madrigal Singers.
- "Remembering the Flying Tigers." Four former members of the Flying Tigers, famed flying group of World War II, recall some of their outstanding experiences. "Primitive Life Close-Up." Dr. and Mrs. William Crocker talk about living with the Canela Indians, a remote tribe of central Brazil.
- "Portrait of a Singer." Martin Williams, Director of the Smithsonian's Jazz Program, illustrates why he calls Sarah Vaughan "today's greatest singer."

## JANUARY 1973

- "Post-Industrial America." A discussion featuring Daniel Bell, Harvard University sociologist and author of *Capitalism Today*, and Chester Cooper, a Fellow of the Woodrow Wilson International Center for Scholars.
- "When the British Burned the White House." Author Walter Lord and Margaret Klapthor, Curator of Political History at the Smithsonian, talk about the British invasion of Washington during the War of 1812. "Beyond the Pearl." A look at semiprecious gems, with Smithsonian Curator Paul Desautels.
- "The Character of the Old West," with Malcolm Watkins and Richard Ahlborn, cultural historians at the Smithsonian. "The Laws of the Sea." A discussion featuring Arvid Pardo, Minister of Ocean Affairs of Malta, and George Robinson, Assistant Counsel of the Smithsonian.
- "A Pioneer in Ecology." Dr. Dale Jenkins of the Smithsonian's Ecology Program talks with Dr. Paul Sears, winner of the 1972 Browning Award for Conserving the Environment. "Man-Made Crystals." Joel Arem of the National Museum of Natural History sheds some light on the uses of synthetic crystals.



## FEBRUARY 1973

- "The Lazzaroni." Lillian Miller, historian at the National Portrait Gallery, talks about the small group of intellectuals who dominated American science in the mid-19th century. "A Look at the Stars and Stripes," with Smithsonian Curator Grace Cooper.
- "Music of the Cajuns." Ralph Rinzler of the Smithsonian's Division of Performing Arts spotlights the unique and fascinating music of the Cajun people of Louisiana.
- "The Coming of Steamboats," with Melvin Jackson, Curator of Maritime Transportation at the Smithsonian. "Soundings Then and Now." A look at instruments and methods that have been used to deal with hearing problems.
- "Concert," featuring Sour Cream, a trio of young recorder players from Holland.

## MARCH 1973

- "Who Really Discovered America?" A discussion featuring Mexican historian Edmundo O'Gorman and Smithsonian staff members Wilcomb Washburn and Melvin Jackson.
- "Duke Ellington: The Great American Composer," with Martin Williams, Director of the Smithsonian's Jazz Studies Program.
- "Citizen Apathy and Initiative." A discussion featuring Albert Gollin, Research Associate of the Bureau of Social Science Research; David Sills, author of *The Volunteers*; Ben Wattenberg, coauthor of *The Real Majority*; and John Dixon, Director of the Center for a Voluntary Society.
- "Baroque Art of Brazil," with Dr. Robert C. Smith, an art historian at the University of Pennsylvania. "Is the Chesapeake in Danger?" A talk with Dr. Francis Williamson, Director of the Smithsonian's Chesapeake Bay Center for Environmental Studies.

## APRIL 1973

- "Concert," featuring Joel Berman, violin, performing music of J. S. Bach and Heinrich von Biber.
- "Technology and Understanding." A discussion with science-fiction writer Arthur C. Clarke.
- "Folk Concert." Jean Redpath performs Scottish ballads.
- "The Earliest Americans." Dr. Dennis Stanford describes the Smithsonian's new PaleoIndian Program, aimed at gathering evidence of early man in America.
- "The True Epicure." A talk with James Beard, internationally known expert on food.
- "The Nature of Scientific Discovery." Highlights from the symposium held in Washington this year to commemorate the 500th birthday of Nicolaus Copernicus.

## MAY 1973

- "The Energy Crisis: Is There One?" A discussion featuring Roger Carlsmith, Director of the Program in Energy Studies at the Oak Ridge National Laboratory, Dr. George Szego, President of InterTechnology Corporation, and William Eilers, Director of the Smithsonian's Office of Environmental Sciences.

"In the Wake of 'Star Trek'." Gene Roddenberry, creator of the TV series, "Star Trek," talks about his aims in that series and his plans for the future. "Project SEED." A look at a highly successful program for teaching mathematics to disadvantaged children.

"Concert." Harpsichordist James Weaver performs music by J. S. Bach and Louis Couperin.

"Dissecting a Mummy." Dr. T. Aidan Cockburn, Research Associate at the Smithsonian, and Dr. J. Lawrence Angel, of the National Museum of Natural History, describe what they learned by opening up an Egyptian mummy. "The Smithsonian's Gunboat." Philip Lundeberg and Howard Hoffman tell the story of the "Philadelphia," the only surviving man-of-war of the American Revolution.

### JUNE 1973

"The Museum as an Iceberg." Paul Perrot, Assistant Secretary of the Smithsonian for Museum Programs, talks about the role of a museum—beyond exhibiting objects.

"The New Federalism." Highlights from a conference held at the Smithsonian by the Woodrow Wilson International Center for Scholars. Among the participants are Governors Nelson Rockefeller of New York and Jimmy Carter of Georgia.

"The History of News Reporting." A look at the growth of American journalism, from the earliest colonial newspapers to "live" pictures from the moon.

"A Trip to Northern Africa." Jim Cornell, of the Smithsonian Astrophysical Observatory, and his wife, Carol, talk about Smithsonian studies in Egypt and Tunisia, against a background of music from both countries.

## Appendix 8

### PUBLICATIONS AND SELECTED CONTRIBUTIONS OF THE SMITHSONIAN INSTITUTION STAFF IN FISCAL YEAR 1973

#### National Museum of Natural History

##### DEPARTMENT OF ANTHROPOLOGY

- Angel, J. Lawrence. "A Middle Paleolithic temporal bone from Darra-i-Kur, Afghanistan." *Transactions of the American Philosophical Society*, volume 62, number 4, pages 54-56, 1972.
- . "Ecology and population in the Eastern Mediterranean." *World Archaeology*, volume 4, number 1, pages 87-105, 1972.
- . "Human skeletal material from the Church." Appendix, pages 30-31 in *Alison Frantz, the Church of the Holy Apostles*. The Athenian Agora, volume XX, ASCS, Princeton, 1971.
- Crocker, William H. "The non-adaptation of a savanna Indian tribe (Canela, Brazil) to forced forest relocation: an analysis of ecological factors." In *Anais (I Seminário de Estudos Brasileiros, 1971, Universidade de São Paulo)*, volume 1, pages 213-281.
- John C. Ewers. "A Unique Pictorial Interpretation of Blackfoot Indian Religion, 1846-1847." *Ethnohistory*, volume 18, number 3, pages 231-238, 1 plate, 1971 (publ. in 1972).
- . "The Influence of the Fur Trade Upon the Indians of the Northern Plains." In *People and Pelts. Selected Papers of the Second North American Fur Trade Conference*. Edited by Malvina Bolus, pages 1-26. Peguis Publishers, Winnipeg, Manitoba, 1972.
- . "Indians as Warriors" (pp. 37-44), and "The Static Images" (pp. 107-109) in *Look to the Mountain Top*. Edited by Bernard L. Fontana. Gousha Publications, San Jose, Calif., 1972.
- . "Blackfoot or Blackfeet?" *Lore*. Milwaukee Public Museum. Summer, 1972, pages 113-114.
- . Introduction to *The Gilcrease-Hargrett Catalogue of Imprints*, page vii. Compiled by Lester Hargrett. University of Oklahoma Press. Norman, Okla., 1972.
- . Introduction to exhibition catalog, *Winold Reiss: Plains Portraits*, pages 4-6. Kennedy Galleries Inc., New York City, 1972.
- . *Report on the Indian Tribes of Texas in 1828* by José Francisco Ruíz. Translated by Georgette Dorn. Edited and with an Introduction (pages 1-5) by John C. Ewers. Yale University Library. New Haven, 1972.
- . "Climate, Acculturation and Costume, a History of Women's



- Clothing Among the Indians of the Southern Plains." Delivered as Anthropological Society of Washington Lecture March 1973; to be published by Anthropological Society of Washington, 31 typed pages).
- . "The Nomadic Plains Indians' Image of Their Environment." Lecture delivered at Images of the Plains Conference, University of Nebraska, April 1973.
- . "George Catlin—His Accomplishments and Influences." Cooke-Daniels Lecture delivered at Denver Art Museum, March 1973.
- . "Intertribal Warfare as the Precursor of Indian-White Warfare on the Northern Plains. Lecture delivered at the Pacific Northwest History Conference, March 1973.
- . "Problems and Procedures in Developing Small Museums." Lecture delivered to Montana Museums Assn., Helena, Montana, May 1973.
- . "Friendly Enemies: Army Officers' Studies of Plains Indians—since Lewis and Clark." Lecture delivered to The Westerners, Billings, Montana, May 1973.
- Fitzhugh, William W. "Environmental Archeology and Cultural Systems in Hamilton Inlet, Labrador." *Smithsonian Contributions to Anthropology*, number 16, 1972.
- . "The Eastern Archaic: commentary and northern perspective." *Pennsylvania Archaeologist*, Spring, 1972.
- . "A Re-Analysis of the Shoop site," by Steven Cox, Department of Anthropology, Smithsonian Institution, 1972—edited by W. Fitzhugh.
- . "Environmental approaches to the prehistory of the North." Washington Academy of Sciences, *Bulletin*, June 1972.
- Koritzer, Richard T. "Dental Pathology in a Sample of 101 Jersey County, Illinois, Indians."
- Koritzer, Richard T., and Daniel Roth. "Applications of Statistical Analysis to Scientific Dental Studies." *Georgetown Dental Journal*, volume 38, number 1, pages 27–30.
- Laughlin, Robert M., and W.S. Merwin. "Two Zinacantec Poems." *Review*, winter, pages 48–49.
- Meggers, Betty J., and Clifford Evans. "Some Problems of Cultural Adaptation in Amazonia with Emphasis on the Pre-European Period." In *Tropical Forest Ecosystems in Africa and South America: A Comparative Review*, edited by Betty J. Meggers, Edward S. Ayensu, and W. Donald Duckworth, pages 311–320, Smithsonian Institution Press, 1973.
- . "A reconstituição da pré-história amazonica. Algumas considerações teóricas." In *O Museu Goeldi no Ano do Sesquicentenário*, pages 51–69. Museu paraense Emílio Goeldi, Avulsas 20, Belém, 1973.
- . "Site Survey at the Mouth of the Amazon." Reprint from Bureau of American Ethnology Bulletin 167, pages 6–11 in *In Search of Man*, Ernestene L. Green, editor, pages 43–48, Little, Brown and Co., New York, 1973.
- Milanich, Jerald T., and William C. Sturtevant, "Franciscan Pareja's 1613 *Confessionario*: A Documentary Source for Timucuan Ethnography." Tallahassee: Division of Archives, History, and Records Management, Florida Department of State. Pages vi, 121, 1973.
- Ortner, Donald J., David W. Von Endt, and Mary S. Robinson. "The Effect of temperature on protein decay in bone: its significance in nitrogen dating of archeological specimens." *American Antiquity*, 37:514–520, 1972.
- Phebus, George E. "Archeology: Western Hemisphere." *Americana Annual*, New York, 1973.

- Riesenberg, Saul H. "The Organization of Navigational Knowledge on Puluwat." *The Journal of the Polynesian Society*, volume 8, pages 19–56, 1972.
- . Foreword, pages vii–ix., to David Lewis, *We, the Navigators*, Canberra, 1972.
- Stewart, T. D. "Wilton Marion Krogman: A resumé." *American Journal of Physical Anthropology*, volume 38, number 1, pages 53–55, 1973.
- . "Recent Improvements in Estimating Stature, Sex, Age and Race from Skeletal Remains." Chapter 9 (pages 193–211) in *Modern Trends in Forensic Medicine*, edited by A. Keith Mant. London: Butterworths, 1973.
- . *The People of America*. London: Weidenfeld and Nicolson; New York: Scribners, pages xiv–261, 1973.
- Sturtevant, William C. "American Indian Religions," pages 45–51 in *Look to the Mountain Top*, edited by Robert L. Iacopi, Bernard L. Fontana, and Charles Jones. San Jose: Gousha Publications, 1972.
- . "Museums as Anthropological Data Banks," pages 40–55 in *Anthropology Beyond the University*, edited by Alden Redfield, Southern Anthropological Society Proceedings No. 7, Athens, Georgia, 1973.
- Sturtevant, William C., and Samuel Stanley. "Linguistics in the Smithsonian," pages 14–18 in *Themes in Linguistics: the 1970's*, edited by Eric P. Hamp. *Janua Linguarum, Series Minor*, 172. The Hague, Mouton, 1973.
- Trousedale, William. "The Crenelated Mane: New Materials and Speculations," *East and West*, New Series, volume 21, numbers 3–4 (1971), pages 341–344. Rome, December 1972.

## DEPARTMENT OF BOTANY

- Ayensu, Edward S. "Phytogeography and Evolution of the Velloziaceae." Pages 105–119 in *Comparative Evolution of Tropical Forest Ecosystems in Africa and South America*, by various authors, edited by B. Meggers, E. S. Ayensu, and W. D. Duckworth. Washington: Smithsonian Press, 1973.
- . "The Religious, 'Stupendous' Passionflowers." *Smithsonian*, volume 3, number 12 (1973), pages 56–61.
- . "Studies on Pollen Morphology in the Velloziaceae." *Proceedings of the Biological Society of Washington*, volume 85 (1972), pages 467–478.
- Ayensu, Edward S., and D. G. Coursey. "Guinea Yams: The Botany, Ethnobotany, Use and Possible Future of Yams in West Africa." *Economic Botany*, volume 26, number 4 (1972), pages 301–318.
- Ayensu, Edward S., and N. H. Williams. "Leaf Anatomy of *Palumbina* and *Odontoglossum* Subgenus *Osmoglossum*." *American Orchid Society Bulletin*, volume 41, number 8 (1972), pages 687–696.
- Conger, Paul S., G. A. Fryxell, and S. Z. El-Sayed. "Diatom Species Reported from the Gulf of Mexico." Pages 18–29 in "Chemistry, Primary Productivity, and Benthic Algae of the Gulf of Mexico, Appendix 1, List of Species." *Serial Atlas of the Marine Environment*, Folio 22. New York: American Geographical Society, 1972.
- Cowan, R. S. "Museum as Environmental Data-Banks: Curatorial Problems Posed by Extensive Biological Surveys." In "The Panamic Biota—Some Observations Prior to a Sea-Level Canal." *Bulletin of the Biological Society of Washington*, number 2 (1972), pages 59–68.
- Cuatrecasas, J. "Algo sobre Compositae en la Flora de Colombia." *Memorias I Congreso Latinoamericano de Botanica* (1972), pages 157–166.



- . "Armando Dugand." *Taxon*, volume 21, numbers 2-3 (1972), pages 377-378.
- . "Miscelanea sobre Flora Neotropica III." *Ciencia* (Mexico), volume 27, number 6 (1972), pages 171-184.
- . "Miscellaneous notes on Neotropical Flora III." *Phytologia*, volume 25, number 4 (1973), pages 249-256.
- Dahl, Arthur L. "(Review of) Ecological Consequences of Immoderation." *World Order*, volume 6, number 4 (1972), pages 61-62.
- . "Ecology and Community Structure of Some Tropical Reef Algae in Samoa." *Proceedings of the International Seaweed Symposium*, volume 7 (1972), pages 34-39.
- Darling, Thomas, Jr., and Stanwyn G. Shetler. "*Sarracenia X catesbaei* Elliott (pro sp.) in the Pocono Mountains of Pennsylvania." *Castanea*, volume 37, number 2 (June 1972), pages 133-137. [Not previously reported.]
- Dennis, J. V., and C. R. Gunn. "Sea Beans." *Florida Naturalist*, volume 45, number 1 (1972), pages 11-14.
- Eyde, R. H. "Pollen of *Alangium*: Toward a More Satisfactory Synthesis." *Taxon*, volume 21, number 4 (1972), pages 471-477.
- Fosberg, F. R. "*Caesalpinia* Major a Legitimate Name." *Taxon*, volume 22 (1973), pages 162-163.
- . "Emilia (Compositae) in Ceylon." *Ceylon Journal of Science*, volume 10 (1972), pages 61-69.
- . *Field Guide to Excursion III, Tenth Pacific Science Congress*. Revised Edition. Honolulu: University of Hawaii, 1972.
- . "On the Importance of Preserving Diversity in Ecosystems," (number 36 in *Publications UICN Nouvelle Series: Comptes Rendus de la Conference Internationale sur la Conservation de la Nature et de ses Ressources à Madagascar*, Morges, Switzerland: Union Internationale pour la Conservation de la Nature et de ses Ressources, 1972), pages 81-84.
- . "Our Native Plants—a Look to the Future." *National Parks and Conservation Magazine*, volume 46, number 11 (1972), pages 17-21.
- . "Plants of Southeastern Polynesia, 2." *Micronesica*, volume 8, numbers 1 and 2 (1972), pages 43-49.
- . "Reflections after the Symposium on Systematic Biological Collections, July 6-8, 1972." *Plant Science Bulletin*, volume 19, number 1 (1973), pages 4-6.
- . "Temperate Zone Influence on Tropical Forest Land Use: A Plea for Sanity." Pages 345-350 in *Tropical Forest Ecosystems in Africa and South America*, by various authors, edited by B. Meggers, E. S. Ayensu and W. D. Duckworth. Washington: Smithsonian Press, 1973.
- . "The Value of Systematics in the Environmental Crisis." *Taxon*, volume 21, numbers 5-6 (1972), pages 631-634.
- Fosberg, F. R., and M.-H. Sachet. "Status of Flora of Western Indian Ocean Islands," (number 36 in *Publications UICN Nouvelle Series: Comptes Rendus de la Conference Internationale sur la Conservation de la Nature et de ses Ressources à Madagascar*, Morges, Switzerland: Union Internationale pour la Conservation de la Nature et de ses Ressources, 1972), pages 152-155.
- Goldberg, Aaron. "Relationship of Dose and Period of Administration of Larvae to Gastrointestinal Nematode Burden in Calves." *American Journal of Veterinary Research*, volume 34 (1973), pages 345-352.
- Gunn, C. R., and J. V. Dennis. "An Ancient Import: Sea Hearts from the Tropics." *Yankee* (August 1972), pages 168-169.



- . "Stranded Tropical Seeds and Fruits Collected from Carolina Beaches." *Castanea*, volume 37, number 2 (1972), pages 195–200.
- Hale, Mason E. "Fine Structure of the Cortex in the Lichen Family Parmeliaceae Viewed with the Scanning-electron Microscope." *Smithsonian Contributions to Botany*, number 10 (1973), pages 1–92.
- . "Natural History of Plummers Island, Maryland. XXI. Infestation of the Lichen *Parmelia baltimorensis* Gyel. and For. by *Hypogastrura packardi* Folsom (Collembola)." *Proceedings of the Biological Society of Washington*, volume 85 (1972), pages 287–295.
- . "New Species of *Parmelia* Section *Cyclocheila* in Southern Africa." *Bryologist*, volume 75 (1972), pages 343–347.
- . "Six New Species of *Parmelia* (Lichenes) from Africa." *Phytologia*, volume 23 (1972), pages 343–349.
- . "Typification of Species in the Lichen Family Thelotremaaceae. Described by Acharius." *Botaniska Notiser*, volume 125 (1972), pages 186–198.
- Hall, John W., and D. H. Nicolson. "*Paxillitriteles*, A New Name for Fossil Megaspores Hitherto Named *Thomsonia*." *Taxon*, volume 22 (1973), pages 319–320.
- King, R. M., and H. Robinson. "Studies in the Eupatorieae (Asteraceae). LXXIV. New Species of *Critonia*, *Fleischmannia* and *Hebeclinium*." *Phytologia*, volume 23 (1972), pages 405–408.
- . "Studies in the Eupatorieae (Asteraceae). LXXV. A New Genus, *Cronquistianthus*." *Phytologia*, volume 23 (1972), pages 409–412.
- . "Studies in the Eupatorieae (Asteraceae). LXXVI. Additions to the Genus *Kysteiopsis*." *Phytologia*, volume 24 (1972), pages 57–59.
- . "Studies in the Eupatorieae (Asteraceae). LXXVII. Additions to the Genus *Steviopsis*." *Phytologia*, volume 24 (1972), pages 60–62.
- King, R. M., and H. Robinson. "Studies in the Eupatorieae (Asteraceae). LXXVIII. A New Genus, *Brickelliastrum*." *Phytologia*, volume 24 (1972), pages 63–64.
- . "Studies in the Eupatorieae (Asteraceae). LXXIX. A New Genus, *Asanthus*." *Phytologia*, volume 24 (1972), pages 65–66.
- . "Studies in the Eupatorieae (Asteraceae). LXXX. A New Genus, *Flyriella*." *Phytologia*, volume 24 (1972), pages 67–69.
- . "Studies in the Eupatorieae (Asteraceae). LXXXI. The Genus, *Phanerostylis*." *Phytologia*, volume 24 (1972), pages 70–71.
- . "Studies in the Eupatorieae (Asteraceae). LXXXII. A New Genus, *Austrobrickellia*." *Phytologia*, volume 24 (1972), pages 72–73.
- . "Studies in the Eupatorieae (Asteraceae). LXXXIII. A New Genus, *Pseudobrickellia*." *Phytologia*, volume 24 (1972), pages 74–76.
- . "Studies in the Eupatorieae (Asteraceae). LXXXIV. A New Genus, *Crossothamnus*." *Phytologia*, volume 24 (1972), pages 77–78.
- . "Studies in the Eupatorieae (Asteraceae). LXXXV. Additions to the Genus *Ageratina* with a Key to the Costa Rican Species." *Phytologia*, volume 24 (1972), pages 79–104.
- . "Studies in the Eupatorieae (Asteraceae). LXXXVI. Additions to the Genus, *Neocuatrecasia*." *Phytologia*, volume 24 (1972), pages 105–107.
- . "Studies in the Eupatorieae (Asteraceae). LXXXVII. The Genus, *Alomia*." *Phytologia*, volume 24 (1972), pages 108–111.
- . "Studies in the Eupatorieae (Asteraceae). LXXXVIII. Additions to the Genus, *Ageratum*." *Phytologia*, volume 24 (1972), pages 112–117.

- . "Studies in the Eupatorieae (Asteraceae). LXXXIX. A New Genus, *Blakeanthus*." *Phytologia*, volume 24 (1972), pages 118–119.
- . "Studies in the Eupatorieae (Asteraceae). XC. The Genus, *Campuloclinium*." *Phytologia*, volume 24 (1972), pages 170–172.
- . "Studies in the Eupatorieae (Asteraceae). XCI. A New Genus, *Macropodina*." *Phytologia*, volume 24 (1972), pages 173–175.
- . "Studies in the Eupatorieae (Asteraceae). XCII. The Genus, *Trichogonia*." *Phytologia*, volume 24 (1972), pages 176–179.
- . "Studies in the Eupatorieae (Asteraceae). XCIII. A New Genus, *Trichogoniopsis*." *Phytologia*, volume 24 (1972), pages 180–181.
- . "Studies in the Eupatorieae (Asteraceae). XCIV. A New Genus, *Platypodanthera*." *Phytologia*, volume 24 (1972), pages 182–183.
- . "Studies in the Eupatorieae (Asteraceae). XCV. Additions to the Genus *Barrosoa*." *Phytologia*, volume 24 (1972), page 184.
- . "Studies in the Eupatorieae (Asteraceae). XCVI. A New Genus, *Lasiolaena*." *Phytologia*, volume 24 (1972), pages 185–186.
- . "Studies in the Eupatorieae (Asteraceae). XCVII. A New Genus, *Dasycondylus*." *Phytologia*, volume 24 (1972), pages 187–191.
- . "Studies in the Eupatorieae (Asteraceae). XCVIII. A New Genus, *Diacranthera*." *Phytologia*, volume 24 (1972), pages 192–194.
- . "Studies in the Eupatorieae (Asteraceae). XCIX. A New Genus, *Amolinia*, and a New Combination in *Bartlettina*." *Phytologia*, volume 24 (1972), pages 265–266.
- . "Studies in the Eupatorieae (Asteraceae). C. A. Key to the Genera of Nueva Galicia, Mexico." *Phytologia*, volume 24 (1972), pages 267–280.
- . "Studies in the Eupatorieae (Asteraceae). CI. New Species of *Fleischmannia* and *Neomirandea*." *Phytologia*, volume 24 (1972), pages 281–284.
- . "Studies in the Eupatorieae (Asteraceae). CII. A New Genus, *Condylidium*." *Phytologia*, volume 24 (1972), pages 380–381.
- . "Studies in the Eupatorieae (Asteraceae). CIII. A New Genus, *Ayapanopsis*." *Phytologia*, volume 24 (1972), pages 382–386.
- . "Studies in the Eupatorieae (Asteraceae). CIV. A New Genus, *Gongrostylus*." *Phytologia*, volume 24 (1972), pages 387–388.
- . "Studies in the Eupatorieae (Asteraceae). CV. A New Genus, *Heterocondulus*." *Phytologia*, volume 24 (1972), pages 389–392.
- . "Studies in the Eupatorieae (Asteraceae). CVI. A New Genus, *Gymnocondylus*." *Phytologia*, volume 24 (1972), pages 393–394.
- . "Studies in the Eupatorieae (Asteraceae). CVII. A New Genus, *Alomiella*." *Phytologia*, volume 24 (1972), pages 395–396.
- . "Studies in the Eupatorieae (Asteraceae). CVIII. A New Genus, *Condylododium*." *Phytologia*, volume 24 (1972), pages 397–400.
- . "Studies in the Eupatorieae (Asteraceae). CIX. A New Genus, *Acritopappus*." *Phytologia*, volume 24 (1972), pages 401–403.
- . "Studies in the Eupatorieae (Asteraceae). CX. Additions to the Genus, *Campuloclinium*." *Phytologia*, volume 24 (1972), pages 404–406.
- Kral, R., and Lyman B. Smith. "Typification of *Xyris macrocephala* Vahl." *Taxon*, volume 21 (1972), pages 651–652.
- Krauss, Harriet Meadow. "The Use of Generalized Information Processing Systems in the Biological Sciences." *Taxon*, volume 22, number 1 (1973), pages 3–18.
- Lellinger, David B. "Five New Species of *Polybotrya*." *American Fern Journal*, volume 62, number 2 (1972), pages 49–56.



- . "Polypodiaceae Subfam Adiantoidae." In Bassett Maguire and Collaborators, "The Botany of the Guayana Highland—Part IX." *Memoirs of the New York Botanical Garden*, volume 23 (1972), pages 1–15.
- . "Polypodiaceae Subfam Vittarioideae." In Bassett Maguire and Collaborators, "The Botany of the Guayana Highland—Part IX." *Memoirs of the New York Botanical Garden*, volume 23 (1972), pages 15–23.
- . "A Revision of the Fern Genus *Niphidium*." *American Fern Journal*, volume 62, number 4 (1972), pages 101–120.
- McClure, F. A. "Genera of Bamboos Native to the New World." T. R. Soderstrom, editor. *Smithsonian Contributors to Botany*, number 9 (1973), pages 1–148.
- Morton, C. V. "Date of Publication of Sodiro's *Cryptogamae Vasculares Quitenses*." *American Fern Journal*, volume 62, number 2 (1972), pages 57–64.
- . "Some Overlooked Combinations for Eastern North American Ferns." *American Fern Journal*, volume 62, number 1 (1972), page 30.
- . "A New Species of *Besleria* from Venezuela." *Acta Botanica Venezuelica*, volume 6, numbers 1–4 (1972), pages 95–97.
- Morton, C. V., and D. Denham. "Lectotypifications of Some Generic Names of Gesneriaceae." *Taxon*, volume 21, numbers 5–6 (1972), pages 669–678.
- Morton, C. V., and D. B. Lellinger. "Pteridophyta." In Julian A. Steyermark, Bassett Maguire and Collaborators, "The Flora of the Meseta del Cerro Jaua." *Memoirs of the New York Botanical Garden*, volume 23 (1972), pages 845–846.
- Nowicke, J. W. "Rhamnaceae." In Robert E. Woodson, Jr., Robert W. Schery and Collaborators, "Flora of Panama." *Annals of the Missouri Botanical Garden*, volume 58 (1971), pages 267–283.
- Nowicke, J. W., and J. E. Ridgway. "Pollen Studies in the Genus *Cordia* (Boraginaceae)." *American Journal of Botany*, volume 60, number 6 (1973), pages 584–591.
- Porter, Duncan M. "The Genera of Zygophyllaceae in the Southeastern United States." *Journal of the Arnold Arboretum*, volume 53, number 4 (October 1972), pages 531–552.
- . "*Geranium potentilloides* in California." *Madroño*, volume 21, number 6 (April 1972), page 449.
- . "Three New Species of *Zanthoxylum* (Rutaceae) from Darién Province, Panama." *Journal of the Arnold Arboretum*, volume 53, number 3 (July 1972), pages 403–408.
- . "Three New Species of *Picramnia* (Simaroubaceae) from Central America." *Journal of the Arnold Arboretum*, volume 54, number 2 (April 1973), pages 315–321.
- Porter, Duncan M., Robert W. Kiger, and Judith E. Monahan. "A Guide for Contributors to Flora North America, Part II: An Outline and Glossary of Terms for Morphological and Habitat Description (Provisional Edition)." *Flora North America Report*, number 66 (March 1973), x + 154 pages.
- Reed, C. F., and H. Robinson. *Index to Die Natürlichen Pflanzenfamilien (Musci—Hepaticae) Editions 1 and 2*. Baltimore: C. F. Reed, 1972, xxii + 336 pages.
- Richardson, James W., and Lyman B. Smith. "Canáceas." *Flora Ilustrada Catarinense*, part 1, fascicle CANA (July 1972), pages 1–39.
- Robinson, H. "Observations on the Origin and Taxonomy of the Antarctic Moss Flora." *Antarctic Research Series*, volume 20 (1972), pages 163–177.
- . "Studies in the Heliantheae (Asteraceae). I. A New Species of *Rhyssolepis*." *Phytologia*, volume 24 (1972), pages 209–210.
- Robinson, H., and R. D. Brettell. "Studies in the Heliantheae (Asteraceae). II. A



- Survey of the Mexican and Central American Species of *Simsia*." *Phytologia*, volume 24 (1972), pages 361-377.
- . "Tribal Revisions in the Asteraceae. I. The Relationship of *Geissolepis*." *Phytologia*, volume 24 (1972), pages 299-301.
- . "Tribal Revisions in the Asteraceae. II. The Relationship of *Trichospira*." *Phytologia*, volume 25 (1973), pages 259-261.
- . "Tribal Revisions in the Asteraceae. III. A New Tribe, Liabeae." *Phytologia*, volume 25 (1973), pages 404-407.
- . "Tribal Revisions in the Asteraceae. IV. The Relationships of *Neurolaena*, *Schistocarpha* and *Alepidocline*." *Phytologia*, volume 25 (1973), pages 439-445.
- Rudd, Velva E. "Leguminosae-Faboideae-Sophoreae." *North American Flora Report*, series 2, part 7 (August 1972), pages 1-50.
- . "A New Species of *Myrocarpus* (Leguminosae) and a Brief Resumé of the Genus." *Phytologia*, volume 23 (July 1972), pages 401-404.
- . "New Taxa and Combinations in *Machaerium* (Leguminosae) II." *Phytologia*, volume 24 (September 1972), pages 121-125.
- . "Studies in *Coursetia* (Leguminosae) I." *Phytologia*, volume 25 (February 1973), pages 257-258.
- . "Supplementary Studies in *Chaetocalyx* I. (Leguminosae) Including a New Species from Brazil." *Phytologia*, volume 24 (November 1972), pages 295-297.
- . "Two New Species of *Ateleia* (Leguminosae) New to North America." *Phytologia*, volume 24, (September 1972), page 120.
- Sachet, M.-H. "Atoll News and Comment." *Atoll Research Bulletin*, volume 162 (1972), pages 1-26.
- Sachet, M.-H., and F. R. Fosberg. "Plants of Southeastern Polynesia. II." *Micronesia*, volume 8, numbers 1-2 (1972), pages 43-50.
- . "Status of Flora of Western Indian Ocean Islands," (number 36 in *Publications UICN Nouvelle Series: Comptes Rendus de la Conference Internationale sur la Conservation de la Nature et de ses Ressources à Madagascar*, Morges, Switzerland: Union Internationale pour la Conservation de la Nature et de ses Ressources, 1972), pages 152-155.
- Shetler, Stanwyn G. "Information Systems and Data Banking." Pages 469-497 in *Vascular Plant Systematics* by A. E. Radford, W. C. Dickison, C. R. Bell, and Contributors. Chapel Hill: University of North Carolina Student Stores, 1972.
- Shetler, Stanwyn G., and Harriet R. Meadow. "Flora North America: A Comprehensive Program of Biological Research, Information Systems Development, and Data Banking Concerned with the Vascular Plants of North America North of Mexico." *Flora North America Report*, number 61 (July 1971), pages 1-126 and appendices A-I. [Not previously reported.]
- Shetler, Stanwyn G., and others. "An Introduction to the Botanical Type Specimen Register." *Smithsonian Contributions to Botany*, number 12 (1973), viii + 186 pages, frontispiece and 3 figures.
- . "A Guide for Contributors to Flora North America (FNA) (Provisional Edition)." *Flora North America Report*, number 65 (March 1973), ix + 28 pages and appendices A-E.
- Shetler, Stanwyn G., Harriet R. Meadow and compilers. "A Provisional Checklist of Species for Flora North America." *Flora North America Report*, number 64 (September 1972), x + 648 pages.
- Simpson (Vuilleumier), B. "The Lactuceae of the Southeastern United States." *Journal of the Arnold Arboretum*, volume 54, number 1 (1973), pages 42-93.

- Smith, Lyman B. "Bromeliaceae." *Flora del Uruguay IV* (1972), pages 1-31.
- . "Bromeliaceae." In Julian A. Steyermark, Bassett Maguire and Collaborators, "The Flora of the Meseta del Cerro Jáua." *Memoirs of the New York Botanical Garden*, volume 23 (November 1972), page 854.
- . "Herbarium Notes, IV." *Phytologia*, volume 25, number 6 (March 1973), pages 418-419.
- . "Notes on Bromeliaceae, XXXIV." *Phytologia*, volume 24, number 5 (December 1972), pages 419-453.
- . "*Ronnbergia petersii*." *Journal of the Bromeliad Society*, volume 23, number 2 (March 1973), pages 46-48, 1 figure.
- . "*Vriesea duarteana*." *Journal of the Bromeliad Society*, volume 23, number 1 (February 1973), pages 16-17, 1 figure.
- . "Xyridaceae." In Julian A. Steyermark, Bassett Maguire and Collaborators, "The Flora of the Meseta del Cerro Jáua." *Memoirs of the New York Botanical Garden*, volume 23 (November 1972), page 847.
- Smith, Lyman B., and Robert J. Downs. "Amarantáceas." *Flora Ilustrada Catarinense*, part 1, fascicle AMARA (December 1972), pages 1-110.
- Smith, Lyman B., and Ruth C. Smith. "Bromeliads of the Lost World." *Journal of the Bromeliad Society*, volume 22, number 6 (November 1972), pages 139-143.
- Soderstrom, T. R., and C. E. Calderón. "Morphological and Anatomical Considerations of the Subfamily Bambusoideae, Based on the New Genus *Maclurolyra*." *Smithsonian Contributions to Botany*, number 11 (1973), iii + 55 pages, 24 figures.
- Soderstrom, T. R., and F. A. McClure. "The Agrostological Term, *antherium*." *Taxon*, volume 21, number 1 (1973), pages 153-154.
- Wasshausen, D. C. "New Species of *Aphelandra* (Acanthaceae)." *Phytologia*, volume 25 (1973), pages 465-502.
- Wasshausen, D. C., and D. F. Austin. "A *Ruellia* (Acanthaceae) Species in *Exogonium* (Convolvulaceae)." *Phytologia*, volume 25 (1973), pages 433-437.
- Wurdack, J. J. "Certamen Melastomataceis XXI." *Phytologia*, volume 26, number 1 (1973), pages 3-11.
- . "Certamen Melastomataceis XX." *Phytologia*, volume 24, number 3 (1972), pages 195-208.
- . "Certamen Melastomataceis XIX." *Phytologia*, volume 23, number 5 (1972), pages 474-502.
- . "Melastomataceae." In Bassett Maguire and Collaborators, "The Botany of the Guayana Highland—Part IX." *Memoirs of the New York Botanical Garden*, volume 23 (1972), pages 197-199.
- . "Melastomataceae." In Julian A. Steyermark, Bassett Maguire and Collaborators, "The Flora of the Meseta del Cerro Jáua." *Memoirs of the New York Botanical Garden*, volume 23 (1973), pages 872-875.
- . "A New *Henriettella* from Venezuela." *Phytologia*, volume 24, number 4 (1972), pages 293-294.
- . "Polygalaceae." In Bassett Maguire and Collaborators, "The Botany of the Guayana Highland—Part IX." *Memoirs of the New York Botanical Garden*, volume 23 (1972), pages 120-126.
- Wurdack, J. J., and J. A. Steyermark. "Notes on the Genus *Perama* (Rubiaceae)." *Bradea*, volume 1, number 16 (1972), pages 151-152.

#### Lectures and Seminars

- Eyde, Richard H. "The Comparative Vertebrate Anatomy of Flowering Plants." Franklin & Marshall College, October 1972.

- . "Distinguishing Ancestral Features from Derived Features in Flowering Plants." Ohio State University, March 1973.
- . "A Tribute to John Price," Curator Emeritus of the North Museum in Lancaster, Exchange Club, Lancaster, Pa., May 1973.
- Lellinger, David B. "Phytogeography of the Ferns of the Choco, Colombia." American Fern Society Session, AIBS Meetings, Minneapolis, Minn., August 1972.
- Read, Robert W. "Ecology of Palms." Annual meeting of the Society of Economic Botany at Cornell University, June 1973.
- Shetler, Stanwyn G. "Early Pennsylvania Botanists." Monthly meeting of Pennsylvania Historical Junto, Washington, D.C., February 1973.
- . "Plant Exploration in Alaska." Howard County (Md.) Chapter of Smithsonian Associates, Columbia, Md., March 1973.
- . "Computers in Systematics." Department of Biology, Towson State College, Towson, Md., April 1973.
- . "250 Years of Russian Botanical Research." Department of Biology, Towson State College, Towson, Md., April 1973.
- . "Enhancing the Role of the Local or Regional Herbarium." Meeting of Association of Southeastern Biologists, Western Kentucky University, Bowling Green, April 1973 (with James F. Matthews).
- Simpson, Beryl. "Desert Scrub Program of the Origin and Structure of Ecosystems Program of the IBP. Its Goals, Research, and Results to Date." International Arid Lands Workshop in Tucson, Arizona, September 1972.
- . "Energetic Relationships of Plants and their Pollinators . . ." Workshop on Energy Flow in Ecosystems at Harvard University, October 1972.
- . "Speciation Patterns in South America." Duke University, February 1973.
- Smith, Lyman B. "Bromeliaceae or Something for Everyone." Kansas State University, March 1973.
- Wurdack, John J. "Flora of the Venezuelan Andes." Philadelphia Botanical Club, March 1973.

#### DEPARTMENT OF ENTOMOLOGY

- Baumann, Richard W. "Book Review: The Classification, Evolution, and Dispersal of the Winter Stonefly Genus *Allocaupnia*." *Bulletin of the Entomological Society of America*, volume 18 (1972), pages 191–192.
- Baumann, Richard W., and Arden R. Gaufin. "The *Amphinemura venusta* Complex of Western North America (Plecoptera: Nemouridae)." *Natural History Museum Los Angeles County, Contribution in Science*, number 226 (1972), pages 1–16.
- Blake, Doris H. "*Colaspis fulvotestacea* Lefèvre and Its Close Relatives (Coleoptera: Chrysomelidae)." *Proceedings of the Entomological Society of Washington*, volume 75 (1973), pages 84–88.
- Cartwright, Oscar L. "A key to the *Crassulus* Group of *Aphodius* with Descriptions of New Species from Texas and Maryland (Coleoptera: Scarabaeidae: Aphodiinae)." *Proceedings of the Biological Society of Washington*, volume 85 (1972), pages 57–62.
- . "Additional Lectotype Designations in the Aphodiinae (Coleoptera: Scarabaeidae)." *Coleopterists Bulletin*, volume 27 (1973), pages 41–43.



- Clarke, J. F. Gates. "Two Pests of Beans from Tropical America." *Proceedings of the Entomological Society of Washington*, volume 74 (1972), pages 467-471.
- Davis, D. R. "*Vespina*, a New Name to Replace the Genus Homonym *Careospina* Davis (Lepidoptera: Incurvariidae)." *Proceedings of the Entomological Society of Washington*, volume 74 (1972), page 472.
- Duckworth, W. Donald. "Old World Stenomidae: A Preliminary Survey of the Fauna, Notes on Relationships, and A Revision of the Genus *Eriogenes* (Lepidoptera: Gelechioidea)." *Smithsonian Contributions to Zoology*, number 147 (1973), pages 1-21.
- . "Distribution Patterns and Species Diversity in the Microlepidopterous Family Stenomidae (Lepidoptera: Gelechioidea)." Contributed paper. 14th International Congress of Entomology, Canberra, Australia, 29 August 1972.
- . "The Type-Material of North American Clearwing Moths (Lepidoptera: Sesiidae)." *Smithsonian Contributions to Zoology*, number 148 (1973), pages 1-34.
- Emerson, K. C. *Checklist of the Mallophaga of North America (North of Mexico) Part I. Suborder Ischnocera*. 200 pages. Dugway, Utah: Deseret Test Center, 1972.
- . "New Records of Mallophaga from Nepalese Mammals." *Journal of Medical Entomology*, volume 8 (1972), page 622.
- . "Mallophaga." Page 360, in Zinderen Bakker, Winterbottom and Dyer, editors, "Marion and Prince Edward Islands." *South African Biological-Geological Expedition 1965-6*, Balkema, Cape Town, 1972.
- . *Checklist of the Mallophaga of North America (North of Mexico) Part III. Mammal Host List*. 28 pages. Dugway, Utah: Deseret Test Center, 1972.
- . *Checklist of the Mallophaga of North America (North of Mexico) Part II. Suborder Amblycera*. 118 pages. Dugway, Utah: Deseret Test Center, 1972.
- . *Checklist of the Mallophaga of North America (North of Mexico) Part IV. Bird Host List*. 216 pages. Dugway, Utah: Deseret Test Center, 1972.
- Emerson, K. C., and Roger D. Price. "A New Genus and Species of Mallophaga from a New Guinea Bush Fowl." *Pacific Insects*, volume 14 (1972), pages 77-81.
- . "A New Species of *Felicola* (Mallophaga: Trichodectidae) from the Liberidan Mongoose (*Liberiictis kuhni*)." *Proceedings of the Biological Society of Washington*, volume 85 (1972), pages 399-404.
- Erwin, Terry L. "Scientific Note.—The Lost Type of *Brachinus sallei* Chaudoir (Coleoptera: Carabidae)." *Pan-Pacific Entomologist*, volume 48 (1972), pages 63-64.
- . "Scientific Note.—Observations on the Life History of Bombardier Beetles: Mechanism of Egg-Hatching (Coleoptera: Carabidae)." *Pan-Pacific Entomologist*, volume 48 (1972), page 64.
- . "*Trechus obtusus* Erichson in California (Coleoptera: Carabidae)." *The Coleopterists Bulletin*, volume 26 (1972), page 42.
- . "Om biologien hos bombarderbiller (Coleoptera: Carabidae: Brachinida)." *Entomologiske Meddelelser*, volume 40 (1972), pages 65-71.
- . "Book Review: The Carabid Beetles of New Guinea by Philip J. Darlington, Jr." *Systematic Zoology*, volume 21 (1972), pages 343-347.
- . "Nomenclatorial notes on the Tachyini (Coleoptera: Carabidae)." *Proceedings of the Entomological Society of Washington*, volume 75 (1973), page 125.
- Erwin, Terry L., and G. E. Ball. "Classification of *Ovipennis* and *Trifaria* Groups of *Nebria* Latreille (Coleoptera: Carabidae: Nebriini)." *Proceedings of the Biological Society of Washington*, volume 85 (1972), pages 77-108.
- Field, William D., and J. F. Gates Clarke. "Introduction." Pages i, ii, in Harrison

- Morton Tietz, *An Index to the Described Life Histories, Early Stages and Hosts of the Macrolepidoptera of the Continental United States and Canada*, 1041 pages. Sarasota, Florida: The Allyn Museum of Entomology, 1973.
- Flint, Oliver S., Jr. "Book Review: The Classification, Evolution, and Dispersal of the Winter Sonefly Genus *Allocaonia*." *Proceedings of the Entomological Society of Washington*, volume 74 (1972), pages 131-132.
- . "Studies of Neotropical Caddisflies, XIV: On a Collection from Northern Argentina." *Proceedings of the Biological Society of Washington*, volume 85 (1972), pages 223-248.
- Harrison, Bruce A. "A New Interpretation of Affinities within the *Anopheles hyrcanus* Complex of Southeast Asia." *Mosquito Systematics*, volume 4 (1972), pages 73-83.
- . "A Lectotype Designation and Description for *Anopheles* (*An.*) *sinensis* Wiedemann 1828, with a Discussion of the Classification and Vector Status of this and some Other Oriental *Anopheles*." *Mosquito Systematics*, volume 5 (1973), pages 1-13.
- Huang, Yiau-Min. "Lectotype Designation for *Aedes* (*Stegomyia*) *galloisi* Yamada with a Note on its Assignment to the *scutellaris* Group of Species." *Proceedings of the Entomological Society of Washington*, volume 74 (1972), pages 253-256.
- . "Contributions to the Mosquito Fauna of Southeast Asia. XIV. The Subgenus *Stegomyia* of *Aedes* in Southeast Asia. I—The *scutellaris* Group of Species." *Contributions of the American Entomological Institute*, volume 9 (1972), pages 1-108.
- . "A New Record of *Aedes* (*Stegomyia*) *alcasidi* Huang (Diptera: Culicidae)." *Proceedings of the Entomological Society of Washington*, volume 75 (1973), page 125.
- Hurd, P. D., Jr. "A New Edition of the Catalog of North American Hymenoptera." *Taxon*, volume 21 (1973), pages 361-362.
- . "Biology of carpenter bees (Xylocopini)." Invitational lecture at symposium, "Perspectives on the Biology of the Hymenoptera." Entomological Society of America, Annual Meeting, 27 November 1972.
- . "*Larrea* bees of the southwestern United States and Argentina." Seminar. IBP Origin and Structure of Ecosystems, Integrated Research Program, 20 March 1973.
- Krombein, K. V. "Monograph of the Madagascan Mutillidae (Hymenoptera). Part I: Myrmillini, Mutillini and Smicromyrmini." *Annales du Musee Royal de l'Afrique Centrale, Sciences Zoologiques*, number 199 (1972), pages 1-61.
- . "Miscellaneous Prey Records of Solitary Wasps. VI. Notes on Some Species from Greece (Hymenoptera Aculeata)." *Proceedings of the Entomological Society of Washington*, volume 74 (1972), pages 383-385.
- . "Computerization of the Synoptic Catalog of North American Hymenoptera." Contributed paper. 14th International Congress of Entomology, Canberra, Australia, 29 August 1972.
- . "Biology of stem- and twig-nesting wasps and bees." Invitational lecture at symposium, "Perspectives on the Biology of the Hymenoptera." Entomological Society of America, Annual Meeting, 27 November 1972.
- . "Nesting Habits of Wasps." Invitational seminar. To faculty and students at Department of Entomology, Virginia Polytechnic University, 11 May 1973.
- Laffoon, J. L., and K. L. Knight. "A Mosquito Taxonomic Glossary. IX. The Larval Cranium." *Mosquito Systematics*, volume 5 (1973), pages 31-96.
- Manning, G. S., B. A. Harrison, W. L. Wooding, and M. Subhakul. "Studies on



- Brugia tupaiae* in Thailand." *Annals of Tropical Medicine and Parasitology*, volume 66 (1972), pages 497–503.
- Meggers, Betty L., Edward S. Ayensu, and W. Donald Duckworth, editors. *Tropical Forest Ecosystems in Africa and South America: A Comparative Review*. vi–350 pages. Washington: Smithsonian Institution Press, 1973.
- Muesebeck, C. F. W. "Nearctic Species of Scelionidae (Hymenoptera: Proctotrupoidea) that Parasitize the Eggs of Grasshoppers." *Smithsonian Contributions to Zoology*, number 122 (1972), pages 1–33.
- . "A New Reared Species of *Trichopria* (Proctotrupoidea: Diapriidae)." *Entomological News*, volume 83 (1972), pages 141–143.
- Peyton, E. L. "A Subgeneric Classification of the Genus *Uranotaenia* Lynch Arribalzaga, with a Historical Review and Notes on Other Categories." *Mosquito Systematics*, volume 4 (1972), pages 16–40.
- Price, Roger D., and K. C. Emerson. "A New Subgenus and Three New Species of *Geomydoecus* (Mallophaga: Trichodectidae) from *Thomomys* (Rodentia: Geomyidae)." *Journal of Medical Entomology*, volume 9 (1972), pages 463–467.
- Reinert, John F. "Description of the Egg of *Aedes* (*Aedimorphus*) *domesticus* (Theobald) (Diptera: Culicidae)." *Mosquito Systematics*, volume 4 (1972), pages 60–62.
- . "Description of the Egg of *Aedes* (*Diceromyia*) *furcifer* Edwards (Diptera: Culicidae)." *Mosquito Systematics*, volume 4 (1972), pages 87–89.
- . "Contributions to the Mosquito Fauna of Southeast Asia. XV. Genus *Aedes* Meigen, Subgenus *Ayurakitia* Thurman." *Contributions of the American Entomological Institute*, volume 9 (1972), pages 1–42.
- . "*Aedes gouldi*, a New Species of the Subgenus *Aedimorphus* Theobald from West Pakistan (Diptera: Culicidae)." *Proceedings of the Entomological Society of Washington*, volume 74 (1972), pages 357–362.
- . "Description of the Egg of *Aedes* (*Levua*) *suva* Stone and Bohart (Diptera: Culicidae)." *Mosquito Systematics*, volume 4 (1972) pages 128–130.
- . "Notes on the Genus *Heizmannia* and the Inclusion in Subgenus *Mattinglyia* of Two Species Placed in *Aedes* Subgenus Uncertain (Diptera: Culicidae)." *Mosquito Systematics*, volume 5 (1973), pages 14–23.
- . "*Aedes wainwrighti* Baisas, a Synonym of *Aedes* (*Stegomyia*) *meronephada* (Dyar and Shannon), with Notes on the Subgenus *Stegomyia* Theobald (Diptera: Culicidae)." *Mosquito Systematics*, volume 5 (1973), pages 27–30.
- . "Contributions to the Mosquito Fauna of Southeast Asia XVI. Genus *Aedes* Meigen, Subgenus *Aedimorphus* Theobald in Southeast Asia." *Contributions of the American Entomological Institute*, volume 9 (1973), pages 1–218.
- Sirivanakarn, S. "Contributions to the Mosquito Fauna of Southeast Asia. XIII. The Genus *Culex*, Subgenus *Eumelanomyia* Theobald in Southeast Asia and Adjacent Areas." *Contributions of the American Entomological Institute*, volume 8 (1972), pages 1–86.
- . "Three New Species of *Culex* Subgenus *Culiciomyia* Theobald from Southeast Asia and a Redescription of the Type of *C. tricuspis* Edwards from Alor, Lesser Sunda Islands, Indonesia (Diptera: Culicidae)." *Proceedings of the Entomological Society of Washington*, volume 75 (1973), pages 112–124.
- Spangler, Paul J., and Jarrett L. Cross. "A Description of the Egg Case and Larva of the Water Scavenger Beetle, *Helobata striata* (Coleoptera: Hydrophilidae)." *Proceedings of the Biological Society of Washington*, volume 85 (1972), pages 413–418.
- Spangler, Paul J., and Janice M. Gillespie. "The Larva and Pupa of the



- Predaceous Water Beetle, *Hygrotus sayi* (Coleoptera: Dytiscidae)." *Proceedings of the Biological Society of Washington*, volume 86 (1973), pages 143-152.
- Traub, R. "Notes on Zoogeography, Convergent Evolution and Taxonomy of Fleas (Siphonaptera), Based on Collections from Gunong Benom and Elsewhere in South-east Asia. I. New Taxa (Pygiopsyllidae, Pygiopsyllinae)." *Bulletin of the British Museum (Natural History), Zoology*, volume 23, number 9 (1972), pages 201-305.
- . "Notes on Zoogeography, Convergent Evolution and Taxonomy of Fleas (Siphonaptera), Based on Collections from Gunong Benom and Elsewhere in South-east Asia. II. Convergent Evolution." *Bulletin of the British Museum (Natural History), Zoology*, volume 23, number 10 (1972), pages 307-387.
- . "Notes on Zoogeography, Convergent Evolution and Taxonomy of Fleas (Siphonaptera), Based on Collections from Gunong Benom and Elsewhere in South-east Asia. III. Zoogeography." *Bulletin of the British Museum (Natural History), Zoology*, volume 23, number 11 (1972), pages 389-450.
- . "The Colloquium on the Zoogeography and Ecology of Ectoparasites, Their Hosts and Related Infections at the Second International Congress of Parasitology, Washington, D.C., 1970. 2. The Zoogeography of Fleas (Siphonaptera) as Supporting the Theory of Continental Drift." *Journal of Medical Entomology*, volume 9 (1972), pages 584-589.
- . "The Colloquium on the Zoogeography and Ecology of Ectoparasites, Their Hosts and Related Infections at the Second International Congress of Parasitology, Washington, D.C., 1970. 23. The Relationship Between the Spines, Combs and Other Skeletal Features of Fleas (Siphonaptera) and the Vestiture, Affinities and Habits of Their Hosts." *Journal of Medical Entomology*, volume 9 (1972), page 601.
- . "The Colloquium on the Zoogeography and Ecology of Ectoparasites, Their Hosts and Related Infections at the Second International Congress of Parasitology, Washington, D.C., 1970. 27. Notes on Fleas and the Ecology of Plague." *Journal of Medical Entomology*, volume 9 (1972), page 603.
- Traub, R., and B. L. Elisberg, editors. "The Colloquium on the Zoogeography and Ecology of Ectoparasites, Their Hosts and Related Infections at the Second International Congress of Parasitology, Washington, D.C., 1970." *Journal of Medical Entomology*, volume 9 (1972), pages 583-605.
- . "The Colloquium on the Zoogeography and Ecology of Ectoparasites, Their Hosts and Related Infections at the Second International Congress of Parasitology, Washington, D.C., 1970. 1. Introductory Remarks by the Editors." *Journal of Medical Entomology*, volume 9 (1972), page 584.
- Traub, R., and C. L. Wisseman, Jr. "The Colloquium on the Zoogeography and Ecology of Ectoparasites, Their Hosts and Related Infections at the Second International Congress of Parasitology, Washington, D.C., 1970. 5. Diminution in the Endemicity of Scrub Typhus with the Passage of Time." *Journal of Medical Entomology*, volume 9 (1972), pages 590-591.
- Traub, R., C. L. Wisseman, Jr., and M. Nadchatram. "The Colloquium on the Zoogeography and Ecology of Ectoparasites, Their Hosts and Related Infections at the Second International Congress of Parasitology, Washington, D.C., 1970. 4. The Zoogeography and Ecology of Scrub Typhus." *Journal of Medical Entomology*, volume 9 (1972), pages 589-590.

## DEPARTMENT OF INVERTEBRATE ZOOLOGY

Barnard, J. Laurens. "The Marine Fauna of New Zealand: Algae-Living Littoral

- Gamaridea (Crustacea Amphipoda)." *New Zealand Department of Scientific and Industrial Research Bulletin*, number 210 (1972), 215 pages, 109 figures.
- . "A Review of the Family Synopiidae (=Tironiidae), Mainly Distributed in the Deep-Sea." *Smithsonian Contributions to Zoology*, number 124 (1972), 94 pages, 46 figures.
- . "Deep-Sea Amphipoda of the Genus *Lepechinella* (Crustacea)." *Smithsonian Contributions to Zoology*, number 133 (1973), 31 pages, 12 figures.
- Bowman, Thomas E. "*Cithadius cyathurae*, a New Genus and Species of Tachidiidae (Copepoda: Harpacticoida) Associated with the Estuarine Isopod, *Cyathura polita*." *Proceedings of the Biological Society of Washington*, volume 85, number 18 (1972), pages 249–254.
- , and R. B. Manning. "Two Arctic Bathyal Crustaceans: the Shrimp *Bythocaris cryonesus*, New Species, and the Amphipod *Eurythenes gryllus*, with In Situ Photographs from Ice Island T-3." *Crustaceana*, volume 23, part 2 (1972), pages 187–201, plate 1.
- . "Pelagic Amphipods of the Genus *Hyperia* and Closely Related Genera. (Hyperiidea: Hyperiidae)." *Smithsonian Contributions to Zoology*, number 136 (1972), 76 pages.
- Bradford, Janet M. "Systematics and Ecology of New Zealand Central East Coast Plankton Sampled at Kaikoura." *New Zealand Department of Scientific and Industrial Research Bulletin*, number 207 (1972), 89 pages.
- Chace, Fenner A., Jr. "Longevity of the West Indian Terrestrial Hermit Crab, *Coenobita clypeatus* (Herbst, 1791) (Decapoda, Anomura)." *Crustaceana*, volume 22, part 3 (1972), page 320.
- . "*Palaemon debilis* from Hawaii and the Status of the Genus *Palaemonetes* (Decapoda, Palaemonidae)." *Crustaceana*, volume 23, part 1 (1972), pages 12–19, 4 figures.
- Chace, Fenner A., Jr. and Raymond B. Manning. "Two New Caridean Shrimps, One Representing a New Family, from Marine Pools on Ascension Island (Crustacea: Decapoda: Natantia)." *Smithsonian Contributions to Zoology*, number 131 (1972), pages 1–18, 11 figures.
- Cressey, Roger F. "*Therodamas dawsoni*, a New Species of Parasitic Copepod (Cyclopoida: Ergasilidae) from the West Coast of Panama." *Proceedings of the Biological Society of Washington*, volume 85, number 20 (1972), pages 265–270.
- . "The Genus *Argulus* (Crustacea: Branchiura) of the United States." *Biota of Freshwater Ecosystems. Identification Manual 2*. United States Environmental Protection Agency, *Water Pollution Control Research Series* (1972), pages 1–14.
- Downey, Maureen E. "Starfishes from the Caribbean and the Gulf of Mexico." *Smithsonian Contributions to Zoology*, number 126 (1973), pages 1–158, 48 plates.
- Hobbs, Horton H., Jr. "*Biota of Freshwater Ecosystems. Identification Manual Number 9. Crayfishes (Astacidae)* of North and Middle America." United States Environmental Protection Agency, *Water Pollution Control Research Series*, (1972) pages x + 173, 115 figures.
- Hobbs, Horton H., and Rudolph Prins. "A New Crayfish of the Subgenus *Puncticambarus* from the Savannah River Drainage with Notes on *Cambarus* (P.) *reburus* Prins (Decapoda, Astacidae)." *Proceedings of the Biological Society of Washington*, volume 84, number 47 (1972), pages 411–420, 1 figure.
- Hobbs, Horton H., and Martha R. Cooper. "A New Troglobitic Crayfish from Oklahoma (Decapoda: Astacidae)." *Proceedings of the Biological Society of Washington*, volume 85, number 3 (1972), pages 49–56, 1 figure.
- Hobbs, Horton H., and Edward T. Hall, Jr. "A New Crayfish from the



- Tallapoosa River in Georgia (Decapoda: Astacidae)." *Proceedings of the Biological Society of Washington*, volume 85, number 3 (1972), pages 151-161, 1 figure.
- Holsinger, John R. "The Freshwater Amphipod Crustaceans (Gammaridae) of North America." *Biota of Freshwater Ecosystems, Identification Manual 5*. United States Environmental Protection Agency, *Water Pollution Research Series* (1972), pages 1-89.
- Hope, W. D. Review of "The Structure of Nematodes." *Transactions of the American Microscopical Society*, volume 92, number 2, pages 328-329.
- Hope, W. D., and D. G. Murphy. "A Taxonomic Hierarchy and Checklist of the Genera and Higher Taxa of Marine Nematodes." *Smithsonian Contributions to Zoology*, number 137 (1972), pages 1-101.
- Jones, Meredith L. "Preliminary Investigations of Related Species of Invertebrates from the Two Coasts of Panama, Using Electrophoretic Techniques." Ninth Meeting, Association of Island Marine Laboratories of the Caribbean, (1972), page 26.
- . Introduction. In Jones, Meredith L., editor, "The Panamic Biota: Some Observations Prior to a Sea-Level Canal," *Bulletin of the Biological Society of Washington*, number 2 (1972), pages vi-viii.
- . Editor "The Panamic Biota: Some Observations Prior to a Sea-Level Canal." *Ibid*, 270 pages.
- . Statement before the Subcommittee on Panama Canal of the Committee on Merchant Marine and Fisheries, House of Representatives, 92nd Congress, on Treaties Affecting the Operations of the Panama Canal. Serial Number 92-30 (1972), pages 252-259.
- . Comparisons of Electrophoretic Patterns of Littorine Snails of Panama. An Attempt to Define Geminant Species. XVII<sup>e</sup> Congrès International de Zoologie, Theme Number 3, *Les conséquences biologiques des canaux inter-oceans*, number 7 (1972), pages 1-10.
- . Flowers of the Sea. *Natural History* (Magazine), volume 82, number 3 (1973), pages 40-45.
- Kenk, Roman. Freshwater Planarians (Turbellaria) of North America. *Biota of Freshwater Ecosystems, Identification Manual No. 1*. United States Environmental Protection Agency, *Water Pollution Control Research Series* (1972), pages ix + 81.
- . Freshwater Triclad (Turbellaria) of North America. V. The Genus *Polycelis*. *Smithsonian Contributions to Zoology*, number 135 (1973), pages 1-15.
- . Freshwater Triclad (Turbellaria) of North America. VI. The Genus *Dendrocoelopsis*. *Smithsonian Contributions to Zoology*, number 138 (1973), pages 1-16.
- Kornicker, Louis S., and I. G. Sohn. *Cypretta kawatai*, a New Species of Freshwater Ostracoda (Crustacea). *Proceedings of the Biological Society of Washington*, volume 85, number 26 (1972), pages 313-316.
- . Morphology of *Cypretta kawatai* Sohn and Kornicker, 1972 (Crustacea, Ostracoda) with Discussion of the Genus. *Smithsonian Contributions to Zoology*, number 141 (1972), pages 1-28.
- Manning, Raymond B. Notes on Some Stomatopod Crustaceans from Peru. *Proceedings of the Biological Society of Washington*, volume 85, number 24 (1972), pages 297-308.
- . Three New Stomatopod Crustaceans of the Family Lysiosquillidae from the Eastern Pacific Region. *Ibid.*, volume 85, number 21 (1972), pages 271-278.



- . *Gonodactylus spinulosus* Schmitt, a West Indian Stomatopod New to Bermuda. *Crustaceana*, volume 23, number 3 (1973), page .
- . Preliminary Definition of a New Genus of Stomatopoda. *Ibid.*, volume 23, number 3 (1973), page .
- Morrison, J. P. E. Mediterranean Siphonaria West and East, Old and New. *Argamon*, volume 3 (1972), pages 51–62.
- . New Name for a Texan *Hydrobia*. *The Nautilus*, volume 87 (1973), page 28.
- . Sympatric Species of *Elliptio* Living in the St. John's River, Florida. *Bulletin of the American Malacological Union*, number (1973), pages .
- . The Families of the Pearly Freshwater Mussels. *Ibid.*, number (1973), pages .
- Pawson, David L. Class Rotifera. Pages 268–275 in A. J. Marshall and W. D. Williams, editor, *Textbook of Zoology Invertebrates*. MacMillan: London, 1972.
- . Class Gastrotricha. *Ibid.*, pages 275–277.
- Rehder, Harald A. "Some Notes on the Genus *Teramachia* (Volutidae: Calliotectinae)." *The Veliger*, volume 15, number 1 (1973), pages 7–10, 1 plate.
- . "Further Comments on Deepwater Volutidae from Off Southeast Africa, with Descriptions of Two New Species of *Volutocorbis*." *The Veliger*, volume 15, number 1 (1973), pages 11–14, 1 plate.
- Rehder, Harald A., and Harry S. Ladd. "Deep and Shallow-Water Mollusks from the Central Pacific." Festschrift for Prof. Hatai. Pub. Sendai University, Sendai, Japan, 37 ms pages. *Tohoku University Science Reprints*, 2nd Series (Geology). Special volume number 6 (*Hatai Memorial Volume*) (1973), pages 37–49, 2 figures, plate 3.
- Rice, Mary E., and I. G. MacIntyre. "A Preliminary Study of Sipunculan Burrows in Rock Thin Sections." *Caribbean Journal of Science*, volume 12, numbers 1–2 (1972), pages 41–44.
- Rice, Mary E., and D. Putnam. "A Comparative Study of the Functional Morphology of Some Pelagosphaera Larvae (Sipuncula)." *American Zoologist*, volume 12, number 4 (1972), page 723.
- Roper, Clyde F. E. "Ecology and Vertical Distribution of Mediterranean Pelagic Cephalopods." In *Mediterranean Biological Studies, Final Report*, volume 1 (1973), pages 282–346. Smithsonian Institution.
- . "Life Span of Mollusca (numbers 43–54)." In Altman, P. L. and D. S. Dittmer, Federation of American Societies for Experimental Biology. *Biological Data Book*, Edition 2, volume 1 (1972), pages 234–235.
- Roper, Clyde F. E., and R. E. Young. "First Records of Juvenile Giant Squid, *Architeuthis* (Cephalopoda: Oegopsida)." *Proceedings of the Biological Society of Washington*, volume 85, number 16 (1973), pages 205–222.
- Roper, Clyde F. E., and W. L. Brundage, Jr. "Cirrate Octopods with Associated Deep-Sea Organisms: New Biological Data Based on Deep Benthic Photographs (Cephalopoda)." *Smithsonian Contributions to Zoology*, number 121 (1973), pages 1–46.
- Rosewater, Joseph. "The Amphi-Atlantic Distribution of *Littorina meleagris*." *The Nautilus*, volume 86, numbers 2–4 (1972) pages 67–69, 1 plate, 1 map, 1 table.
- . "Teratological *Littorina scabra angulifera*." *The Nautilus*, volume 86, numbers 2–4 (1972), pages 70–71, 1 plate.
- . "Life Span of Mollusca (numbers 55–74)." In Altman, P. L. and D. S. Dittmer, Federation of American Societies for Experimental Biology, Bethesda, Maryland, 1972. *Biology Data Book*, edition 2, volume 1 (1972), pages 234–235.

- . "Class Kinorhyncha." *Ibid.*, pages 277–280.
- . "Phylum Priapulioidea." *Ibid.*, pages 737–739.
- Ruetzler, Klaus. "Principles of Sponge Distribution in Indo-Pacific Coral Reefs. Results of the Austrian Indo-West Pacific Expedition 1959/60." *Proceedings of the Symposium on Corals and Coral Reefs*, January 1969.
- Williams, Austin B. "A Ten-Year Study of Meroplankton in North Carolina Estuaries: Mysid Shrimps." *Chesapeake Science*, volume 13, number 4 (1972), pages 254–262.
- . "Decapod Crustaceans of Chesapeake Bay." *Ibid.*, volume 13 (Supplement) (1972), pages 5119–5121.
- . Review. Guide to Identification of Marine and Estuarine Invertebrates, Cape Hatteras to the Bay of Fundy, by Kenneth L. Gosner 1971. Wiley-Interscience, N.Y. xix + 693 pages. *Transactions of the American Fisheries Society*, volume 101, part 3 (1972), pages 570–571.
- William, Austin B., and H. Bynum. "A Ten-Year Study of Meroplankton in North Carolina Estuaries: Amphipods." *Chesapeake Science*, volume 13, part 3, (1972), pages 175–192.
- Wright, K. A., W. D. Hope, and N. O. Jones. "The Ultra-Structure of the Sperm of *Deontostoma californicum*, A Free-Living Marine Nematode." *Proceedings of the Helminthological Society of Washington*, volume 40, part 1, (1972), pages 30–36.

#### *Lectures and seminars*

- Bowman, Thomas E. Discussant at symposium "Biology of Appalachian Cavernicoles." AAAS Meetings, December 1972.
- Hobbs, Horton H. "Cave Crayfishes of North America." University of Richmond, November 1972.
- Holsinger, John R. "Cave Biology." D.C. Chapter, National Speleological Society and to Potomac Speleological Club, Spring, 1973.
- . Organizer of symposium "Biology of Appalachian Cavernicoles." AAAS Meetings, December 1972.
- Jones, Meredith L. "Observations on the Acmaeidae: Electrophoretic and Morphological." Bodega Marine Laboratory, August 1972.
- . "Comparisons of Electrophoretic Patterns of Littorine Snails of Panama: an Attempt to Define Species." 17th International Congress of Zoology, Monaco, September 1972.
- . Panelist in "On the Nature of Scientific Discovery." National Museum of Natural History, April 1973.
- Kornicker, Louis S. "Transport of ostracods to exotic environs by oysters." Ostracoda Symposium, Delaware, August 1972.
- Kornicker, Louis S., and I. G. Sohn. "Rates of predation of snails by ostracod species." Ostracoda Symposium, Delaware, August 1972.
- Rice, Mary L. "Reproductive biology and ecology of Sipuncula." Harbor Branch Foundation, November 1972.
- . "A comparative study of the functional morphology of some pelagospaera larvae (Sipuncula)." AAAS Meetings, December 1972.
- Roper, Clyde F. E. "Vertical and seasonal distribution of Mediterranean pelagic cephalopods." Annual Meeting, American Malacological Union, Delaware, June 1973.
- Rosewater, Joseph. "Mollusks of Ascension Island." Annual Meeting, American Malacological Union, Delaware, June 1973.

## DEPARTMENT OF MINERAL SCIENCES

- Arem, J. E. *Rocks and Minerals*, Bantam Books, 160 pages, 1973.
- Banks, H. H., Jr. "Iron-rich Saponite: Additional Data on Samples Dredged from the Mid-Atlantic Ridge, 22° N. Latitude." *Smithsonian Contributions to the Earth Sciences*, number 9, pages 39–42, 1972.
- Clarke, Roy S., Jr. (editor). "The Meteoritical Bulletin No. 51." *Meteoritics*, pages 215–232, 1972.
- Clarke, Roy S., Jr., and E. Jarosewich. "Iron Meteorite Compositions." *Smithsonian Contributions to the Earth Sciences*, number 9, pages 65–66, 1972.
- Clarke, Roy S., Jr., E. Jarosewich, and J. Nelen. "The Nejo, Ethiopia, Meteorite." *Smithsonian Contributions to the Earth Sciences*, number 9, pages 67–68, 1972.
- Finkelman, R., J. Matzko, C. C. Woo, J. White, and W. Brown. "A Scanning Electron Microscopy Study of Minerals in Geodes from Chihuahua, Mexico." *Mineralogical Record*, volume 3, pages 205–212, 1972.
- Fodor, R. V., K. Keil, and E. Jarosewich. "The Orogrande, New Mexico, Chondrite and Its Lithic Inclusions." *Meteoritics*, volume 4, pages 341–352, 1972.
- Fredriksson, K., A. Dube, D. Milton, and M. S. Balasundaram. "The Lonar Meteorite Crater, India." *Meteoritics*, volume 8, page 35, 1973.
- Fredriksson K., D. Milton, and A. Dube. "Microbreccias, Impact Glasses and Spherules from Lonar Crater, India: Lunar Analogs." *Meteoritics*, volume 8, page 34, 1973.
- Fredriksson, K., J. Nelen, and A. Noonan. "Lunar Chondrules." *Meteoritics*, volume 6, pages 270–271, 1971 [not previously reported].
- . "Lunar, Terrestrial and Meteoritic Impact Breccias." *Lunar Science IV*, pages 263–265, 1973.
- Fudali, R. F. "Experimental Data Bearing on the Paragenesis of Two Hawaiian Basalts from Kilauea Volcano." *Smithsonian Contributions to Earth Sciences*, number 9, pages 33–38, 1972.
- . "Roter Kamm: Evidence for an Impact Origin." *Meteoritics*, volume 8, number 2, 1973.
- Fudali, R. F., and D. P. Gold. "The Pretoria Salt Pan: Astrobleme or Cryptovolcano?" *Meteoritics*, volume 8, number 1, page 36, 1972.
- Graham, A. L., and B. Mason. "Niobium in Meteorites." *Geochimica et Cosmochimica Acta*, volume 36, pages 917–922, 1972.
- Jarosewich, E. "Chemical Analysis of Five Minerals for Microprobe Standards." *Smithsonian Contributions to the Earth Sciences*, number 9, pages 83–84, 1972.
- Kraut, F., and K. Fredriksson. "Hedjaz, an L-3, L-4, L-5 and L-6 Chondrite." *Meteoritics*, volume 6, page 384, 1971 [not previously reported].
- . "Impactites. Milieu et Morphologies des "Shatter Cones" dans la Region de Rochechouart (Haute-Vienne et Charent)." *Comptes Rendu, Acad. Sci. Paris*, volume 274, pages 2560–2562, 1972.
- Levi-Donati, G. "Mineralogical and Chemical Researches on L Chondrites: Girgenti." *Meteoritics*, volume 4, pages 109–125, 1972.
- Lovering, J. F., B. Mason, G. E. Williams, and D. H. McColl. "Stratigraphical Evidence for the Terrestrial Age of Australites." *Journal of the Geological Society of Australia*, volume 18, pages 409–418, 1972.
- Mason, B. "Lunar Tridymite and Cristobalite." *American Mineralogist*, volume 57, pages 1530–1535, 1972.
- . "The Mineralogy of Meteorites." *Meteoritics*, volume 7, pages 309–326, 1972.



- . "Tocornalite." *Smithsonian Contributions to the Earth Sciences*, number 9, pages 79–80, 1972.
- . Hammond Downs, a new Chondrite from the Tenham area, Queensland, Australia. *Meteoritics*, volume 8, number 1, pages 1–7, 1973.
- . "Mineralogy and Petrology of Lunar Samples 15264, 19, 15274, 12, and 15314, 59." *The Apollo 15 Lunar Samples*, (J. W. Chamberlain and C. Watkins, editors), pages 135–136, 1972.
- . "Mineralogy and Petrology of Polymict Breccia 15498." *The Apollo 15 Lunar Samples* (J. W. Chamberlain and C. Watkins, editors), pages 137–139, 1972.
- . "Minor and Trace Element Distribution in Minerals of the Muzzle Riber Gabbro." *New Zealand Journal of Geology and Geophysics*, volume 15, pages 465–475, 1972.
- Mason, B., E. Jarosewich, W. G. Melson, and G. Thompson. "Mineralogy, Petrology, and Chemical Composition of Lunar Samples 15085, 15256, 15271, 15471, 15475, 15476, 15535, 15555, and 15556." *Proceedings of the Third Lunar Science Conference*, volume 1, pages 785–796, 1972.
- Mason, B., and W. G. Melson. *The Lunar Rocks* (Russian Translation). Moscow: Mir., 165 pages, 1973.
- Mason, B., W. G. Melson, E. P. Henderson, E. Jarosewich, and J. Nelen. Mineralogy and Petrology of Some Apollo 12 Samples. *Smithsonian Contributions to Earth Sciences*, number 9, pages 1–4, 1972.
- Mason, B., T. Simkin, A. F. Noonan, G. S. Switzer, J. A. Nelen, G. Thompson, and W. G. Melson. "Composition of Apollo 16 Fines 60051, 60052, 64811, 64812, 67711, 67712, 58821, and 68822." *Lunar Science IV*, pages 505–507, 1973.
- Melson, W. (editor). "Mineral Sciences Investigations, 1969–1971." *Smithsonian Contributions to the Earth Sciences*, number 9, 94 pages, 1972.
- Melson, W., S. Hart, and G. Thompson. "St. Paul's Rocks, Equatorial Atlantic: Petrogenesis, Radiometric Ages, and Implications on Sea-Floor Spreading." *Geological Society of America Memoir*, volume 132, pages 241–272, 1972.
- Melson, W., E. Jarosewich, G. Switzer, and G. Thompson. "Basaltic Nuées Ardentes of the 1970 Eruption of Ulawun Volcano, New Britain." *Smithsonian Contributions to the Earth Sciences*, number 9, pages 15–32, 1972.
- Melson, W., and G. Thompson. "Glassy Abyssal Basalts, Atlantic Sea-Floor near St. Paul's Rocks: Petrography and Composition of Secondary Clay Minerals." *Geological Society of America Bulletin*, volume 84, pages 703–716, 1973.
- Moreland, G., F. Ingram, and H. H. Banks, Jr. "Preparation of Doubly Polished Thin Sections." *Smithsonian Contributions to the Earth Sciences*, number 9, pages 93–94, 1972.
- Nelen, Jr., and K. Fredriksson. "The Nakhon Pathon Meteorite." First Annual Report of the Department of Mineral Sciences. *Smithsonian Contributions to the Earth Sciences*, number 9, pages 69–74, 1972.
- Nelen, J., and B. Mason. "The Estherville Meteorite." *Smithsonian Contributions to the Earth Sciences*, number 9, pages 55–56, 1972.
- Nelen, J., A. Noonan, and K. Fredriksson. "Lunar Glasses, Breccias, and Chondrules." *Proceedings of the Third Lunar Science Conference*, volume 1, pages 723–737, 1972.
- Noonan, A. F., E. Jarosewich, and R. S. Clarke, Jr. "The St. Mary's County, Maryland, LL3 Chondrite." (Abstract). *Meteoritics*, volume 8, pages 61–62, 1972.
- Noonan, A. F., J. Nelen, and K. Fredriksson. "The Forest Vale Meteorite." *Smithsonian Contributions to the Earth Sciences*, number 9, pages 57–64, 1972.

- Simkin, T. "Origin of Some Flat-Topped Volcanoes and Guyots." *Geological Society of America Memoir*, volume 132, pages 183–193, 1972.
- Switzer, G. "The Diamond Industry in 1972." *Jeweler's Circular Keystone*, October 1972, page 6.
- Switzer, G., and J. Gurney. "The Discovery of Garnets Closely Related to Diamonds in the Finsch Pipe, South Africa." *Contributions to Mineralogy and Petrology*, volume 39, pages 103–116, 1973.
- Switzer, G., and W. Melson. "Origin and Composition of Rock Fulgurite Glass." *Smithsonian Contributions to the Earth Sciences*, number 9, pages 47–51, 1972.
- Switzer, G., W. Melson, and G. Thompson. "Olivine Crystals from the Floor of the Mid-Atlantic Ridge near 22° N Latitude." *Smithsonian Contributions to the Earth Sciences*, number 9, pages 43–46, 1972.
- White, J., P. B. Leavens, J. E. Arem, J. A. Nelen, and R. W. Thomssen. "Brannockite, a New Tin Silicate. *Mineralogical Record*, volume 4, pages 73–76, 1973.
- White, J., and J. Nelen. "Tetrawickmanite, Tetragonal  $\text{MnSn}(\text{OH})_6$ , a New Mineral from North Carolina, and the Stottite Group." *Mineralogical Record*, volume 4, pages 24–30, 1973.
- Ziegler, C., T. Simkin, and J. M. Brinkerhoff. "Portable X-ray Spectrometer: Applications to Field Geology in the Galapagos Islands." *Isotopes and Radiation Technology*, volume 9, pages 434–443, 1972.

## DEPARTMENT OF PALEOBIOLOGY

- Adegoke, O. S., and Daniel J. Stanley. "Mica and Shell as Indicators of Energy Level and Depositional Regime on the Nigerian Shelf." *Marine Geology* (1972), volume 13, pages 61–66.
- Adey, Walter H., and Ian G. Macintyre. "Crustose Coralline Algae: A Re-evaluation in the Geological Sciences." *Geological Society of America Bulletin* (March 1973), volume 84, pages 883–904, 31 figures.
- Batolini, C., C. Gehin, and Daniel J. Stanley. "Morphology and Recent Sediments of the Western Alboran Basin in the Mediterranean Sea." *Marine Geology* (1972), volume 13, pages 159–224.
- Benson, Richard H. "Preliminary report on the Ostracods of DSDP Leg 12, Sites 117 and 117A." *Initial Reports of the Deep-Sea Drilling Project* (NSF), (1972), volume XII, pages 427–432.
- . "Psychrospheric and Continental Ostracoda from Ancient Sediments in the Floor of the Mediterranean." *Initial Reports of the Deep-Sea Drilling Project* (1972), volume XIII, part 2, pages 1002–1008.
- . "The Bradleya Problem with Descriptions of Two New Ostracode Genera, *Agrenocythere* and *Poseidonamicus*." *Smithsonian Contributions to Paleobiology* (1972), number 140 pages, 14 plates, 67 text-figures.
- . "Ostracodes as Indicators of Threshold Depth in the Mediterranean During the Pliocene." In D. J. Stanley, editor, *The Mediterranean Sea*, pages 47–57.
- . "On *Bythoceratina scaberrima* (Brady)." *Stero Atlas of Ostracod Shells* (1973), number 1, part 3, pages 23–30, 4 plates.
- Boardman, Richard S. "Body Walls and Attachment Organs in Some Recent Cyclostomes and Paleozoic Trepostomes." In G. P. Larwood, editor, *Proceedings of the Second International Conference on Bryozoa*, I.B.A. pages 231–246, 3 plates, 4 text figures, I.B.A., Durham, England.

- , Alan H. Cheetham, and W. A. Oliver, Jr. "Introducing Coloniality." In R. S. Boardman, A. H. Cheetham, and W. A. Oliver, editors, *Animal Colonies: Their Development and Function Through Time*, 544 pages.
- , and Alan H. Cheetham. "Degrees of Colony Dominance in Stenolaemate and Gymnolaemate Bryozoa." *Ibid.*, 100 pages, 40 figures.
- Cheetham, Alan H. "Study of Cheilostome Polymorphism Using Principal Components Analysis." In G. P. Larwood, editor, *Proceedings of the Second International Conference on Bryozoa*, pages 385–409, I.B.A., Durham, England.
- , and E. Hakansson. "Preliminary Report on Bryozoa (Site 117)." In A. S. Laughton, W. A. Berggren, et al., editors, *Initial Reports of the Deep Sea Drilling Project*, volume XII, pages 432–440, plates 13–28, figure 29.
- Emry, Robert J., and M. R. Dawson. "A Unique Cricetid (Rodentia, Mammalia) from the Early Oligocene of Natrona County, Wyoming." *American Museum Novitates*, (November 29, 1972), number 2508.
- Hickey, Leo J. "Stratigraphic Summary of the Golden Valley Formation (Paleocene-Eocene) of Western North Dakota. *Guidebook, Coal Geology Division, Geological Society of America* (11/10–11/72); *North Dakota Geological Survey, Miscellaneous Series*, number 50, pages 105–122.
- . "Classification of the Architecture of Dicotyledonous Leaves." *American Journal of Botany*, volume 60, part 1, pages 17–33.
- Hotton, Nicholas III. "*Kombuisia frerensis*, a New Dicynodont (Reptilia, Therapsida) from Cynognathus Zone Deposits of South Africa. In Festschrift for L. D. Boonstra. *Annals of the South African Museum, Cape Town*.
- . "Origin and Radiation of the Classes of Poikilothermous Vertebrates. *Proceedings of the Conference on the Evolution of Brain and Behavior*. (February 24–March 1, 1973), Florida State University, Tallahassee, Florida.
- Huang, T.-C., Daniel J. Stanley, and R. Stuckenrath. "Sedimentological Evidence for Current Reversal at the Strait of Gibraltar." *Marine Technology Journal* (1972), volume 6, pages 25–33.
- , and Daniel J. Stanley. "Western Alboran Sea: Sediment Dispersal, Ponding and Reversal of Currents. In D. J. Stanley, editor, *The Mediterranean Sea: A Natural Sedimentation Laboratory* (1972), pages 521–560.
- Kelling, G., and Daniel J. Stanley. "Sedimentary Evidence of Bottom Current Activity, Strait of Gibraltar Region." *Marine Geology* (1972), volume 13, pages 51–60.
- . "Sedimentation in the Vicinity of the Strait of Gibraltar." In D. J. Stanley, editor, *The Mediterranean Sea: A Natural Sedimentation Laboratory* (1972), pages 489–520.
- Macintyre, Ian G. "Submerged Reefs of Eastern Caribbean." *The American Association of Petroleum Geologists Bulletin*, (April 1972), volume 56, number 4, pages 720–738.
- . "Submerged Reefs of Eastern Caribbean: Reply." *The American Association of Petroleum Geologists Bulletin*, (February 1973), volume 57, number 2, pages 407–411.
- Milliman, J. D., Y. Weiler, and Daniel J. Stanley. "Morphology and Carbonate Sedimentation on Shallow Banks in the Alboran Sea." In D. J. Stanley, editor, *The Mediterranean Sea: A Natural Sedimentation Laboratory* (1972), pages 241–260.
- Rice, M. E., and Ian G. Macintyre. "A Preliminary Study of Sipunculan Burrows in Rock Thin Sections." *Caribbean Journal of Science*, volume 12, parts 1–2, pages 41–44.
- Scott, R. A., P. L. Williams, L. C. Craig, E. S. Barghoorn, Leo J. Hickey, and H. D. MacGinitie. "'Pre-Cretaceous' Angiosperms from Utah: Evidence for



- Tertiary Age of the Palm Wood and Roots." *American Journal of Botany*, volume 59, part 9, pages 886–896.
- Stanley, Daniel J., editor. *The Mediterranean Sea: A Natural Sedimentation Laboratory*, (1972), 765 pages.
- Stanley, Daniel J., M. B. Cita, N. C. Flemming, et al. "Guidelines for Future Sediment-related Research in the Mediterranean Sea." In D. J. Stanley, editor, *The Mediterranean Sea: A Natural Sedimentation Laboratory*, (1972), pages 723–741.
- Stanley, Daniel J., P. Finner, and G. Kelling. "Currents and Sediment Transport at the Wilmington Canyon Shelfbreak, as Observed by Underwater Television." In D. J. P. Swife, D. B. Duane, and O. H. Pilkey, editors, *Shelf Sediment Transport: Process and Pattern*, (1972), pages 621–644.
- Stanley, Daniel J., H. Sheng, and C. P. Pedraza. "Lower Continental Rise East of the Middle Atlantic States: Predominant Sediment Dispersal Perpendicular to Isobaths: Reply." *Geological Society of America Bulletin*, (1972), volume 83, pages 3539–3540.
- Waller, Thomas R. "The Functional Significance of Some Shell Microstructures in the Pectinacea (Mollusca: Bivalvia)." International Geological Congress, 24th Session, Montreal, Canada. *Paleontology*, Section 7, (August 1972), pages 48–56, 3 figures, 1 table.
- . "The Habits and Habitats of Some Bermudian Marine Mollusks." *The Nautilus*, (April 1973), volume 87, number 2, pages 31–52, 33 figures, 2 tables.

## DEPARTMENT OF VERTEBRATE ZOOLOGY

- Aldrich, J. W. [Review of] *A Field Guide to the Birds of Mexico and Central America*, by L. Irby Davis. 282 pages. Austin and London: University of Texas Press. 1972. *Atlantic Naturalist*, volume 27, number 4 (1972), pages 195–196.
- . "A New Subspecies of Sandhill Crane from Mississippi." *Proceedings of the Biological Society of Washington*, volume 85, number 5 (1972), pages 63–70.
- Ali, Sálím, and S. Dillon Ripley. *Handbook of the Birds of India and Pakistan*, volume 8: Warblers to Redstarts. XIV + 277 pages, 8 plates, 66 maps, numerous line drawings. Bombay: Oxford University Press. 1973.
- Ash, John S. "Six Species of Birds New to Ethiopia." *Bulletin of the British Ornithologists' Club*, volume 93, number 1 (March 1973), pages 3–6.
- . "Charadriiform Birds in the Ethiopian Rift Valley." *Walia*, volume 4 (1972), pages 14–18.
- . "Distribution Map Scheme for Ethiopia." *Ibis*, volume 114 (1972), page 109.
- . "*Luscinia luscinia* and *L. megarhynchos* in Ethiopia." *Ibis*, volume 115, number 2 (April 1973), pages 267–269.
- Banks, Richard C. "A Systematist's View." In *Role of Hand-reared Ducks in Waterfowl Management: A Symposium*, pages 117–120. Bureau of Sport Fisheries and Wildlife and Max McGraw Foundation. 1972.
- Banks, R. C., M. H. Clench, and J. C. Barlow. "Bird Collections in the United States and Canada." *Auk*, volume 90, number 1 (1973), pages 136–170.
- Belton, William. "Some Additional Birds for the State of Rio Grande Do Sul, Brazil." *Auk*, volume 90, number 1 (5 January 1973), pages 94–99.
- Booth, Julie, and James A. Peters. "Behavioral Studies on the Green Turtle, *Chelonia mydas*, in the Sea." *Animal Behavior*, volume 20 (1973), pages 808–813.

- Brownell, R. L., Jr., and Earl S. Herald. "*Lipotes vexillifer*." American Society of Mammalogists, *Mammalian Species*, number 10 (1972), pages 1-4.
- Brownell, R. L., Jr., J. Olazarri, and F. Achaval. "Marine Mammal and Bird Observations and Trawling off Uruguay: R/V Hero Cruise 72-3." *Antarctic Journal of the U. S.*, volume 8, number 1 (January-February 1973), pages 8-9.
- Bury, R. Bruce. "The Effects of Diesel Fuel on a Stream Fauna." *California Fish and Game Quarterly*, volume 58, number 4 (1972), pages 291-295.
- . "Small Mammals and Other Prey in the Diet of the Pacific Giant Salamander, *Cicamptodon ensatus*." *American Midland Naturalist*, volume 87, number 2 (1972), pages 524-526.
- . "Status Report on California's Threatened Amphibians and Reptiles." California Fish and Game, *Inland Fisheries Administration Report*, number 72-2 (1972), 31 pages.
- . "Aggressive Behavior in the Pacific Pond Turtle, *Clemmys marmorata*." Lecture given at the meetings of the Herpetologists' League and Society for the Study of Amphibians and Reptiles, August 1972.
- . "Federal Regulations on Reptile and Amphibian Importation and Exportation." Lecture given at the Eastern Seaboard Herpetological League meetings, October 1972.
- . "The Role of Basking in the Pond Turtle, *Clemmys marmorata*." Lecture given at the meetings of the Herpetologists' League, December 1972.
- Bury, R. Bruce, and S. B. Ruth. "Santa Cruz Long-Toed Salamander: Survival in Doubt." *Herpetologists' Review*, volume 4, number 1 (1972), pages 20-22.
- Bury, R. Bruce, and Glenn R. Stewart. "California Protects Its Herpetofauna." *HISS News-Journal*, volume 1, number 2 (1973), pages 43-47.
- Chapman, Joseph A., and John L. Paradiso. "First Records of the New England Cottontail (*Sylvilagus transitionalis*) from Maryland." *Chesapeake Science*, volume 13, number 2 (1972), page 149.
- Clapp, Roger B., and R. C. Banks. "Birds Imported into the United States in 1970." U. S. Department of the Interior, Bureau of Sport Fisheries and Wildlife, *Special Scientific Report—Wildlife*, number 148 (1973), 102 pages.
- Cohen, D. M. "Summary in The Panamic Biota: Some Observation Prior to a Sea-Level Canal." *Bulletin of the Biological Society of Washington*, number 2 (1972), pages 261-266.
- Cohen, D. M., and J. G. Nielsen, "A Review of the Viviparous Ophidioid Fishes of the Genus *Saccogaster*." *Proceedings of the Biological Society of Washington*, volume 85 (1972), pages 445-468.
- Collette, Bruce B. "Conclusions," in *Results of the Tektite Program: Ecology of Coral Reef Fishes*. Science Bulletin number 14 (1972), pages 171-174. Natural History Museum Los Angeles County.
- Collette, Bruce B., Daniel M. Cohen, and James A. Peters. "Stability in Zoological Nomenclature." *Science*, volume 177 (1972), pages 452-453.
- Collette, Bruce B., and Sylvia A. Earle, editors, *Results of the Tektite Program: Ecology of Coral Reef Fishes*. Science Bulletin number 14 (1972), pages 1-180. Natural History Museum Los Angeles County.
- Collette, Bruce B., and Frank H. Talbot. "Activity Patterns of Coral Reef Fishes with Emphasis on Nocturnal-Diurnal Changeover," in *Results of the Tektite Program: Ecology of Coral Reef Fishes*, Science Bulletin number 14 (1972), pages 98-124. Natural History Museum Los Angeles County.
- Collette, Bruce B., and Teruya Uyeno. "*Pontinus niger*, a Synonym of the Scorpionfish *Ectreposebastes imus*, with Extension of its Range to Japan." *Japanese Journal of Ichthyology*, volume 19, number 1 (1972), pages 26-28.



- Findley, J. S., E. H. Studier, and Don E. Wilson. "Morphologic Properties of Bat Wings," *Journal of Mammalogy*, volume 53, number 3 (1972), pages 429-444.
- Fleming, T. H., E. T. Hooper, and Don E. Wilson. "Three Central American Bat Communities: Structure, Reproductive Cycles, and Movement Patterns," *Ecology*, volume 53, number 4 (1972), pages 555-569.
- Gibbs, Robert H., Jr. "Gear, Sampling Methods, and Biological Sample Processing," in *Mediterranean Biological Studies*, Report to Office of Naval Research (1972), Contract No. N00014-67-A-0399-0007, processed, pages 5-25.
- Gibbs, Robert H., Jr., and James E. Craddock. "*Eustomias crucis* (Stomiatoidei, Melanostomiidae). A New Species of Deepsea Fish From the Eastern South Pacific, and Contributions to the Knowledge of *Eustomias trewavasae* Norman." *Proceedings of the Biological Society of Washington*, volume 86, number 13 (1973), pages 153-162.
- Goodyear, Richard H., Bernard J. Zahuranec, W. Lawrence Pugh, and Robert H. Gibbs, Jr. "Ecology and Vertical Distribution of Mediterranean Midwater Fishes," in *Mediterranean Biological Studies*, Report to Office of Naval Research (1972), Contract No. N00014-67-A-0399-0007, processed, pages 91-299, appendix tables 47-474.
- Handley, C. O., Jr. "Mammalogy in Panama." *Bulletin of the Biological Society of Washington*, volume 2 (1972), pages 217-228.
- Harrison, R. J., R. L. Brownell, Jr., and R. C. Boice. "Reproduction and Gonadal Appearances in Some Odontocetes," in *Functional Anatomy of Marine Mammals*, R. J. Harrison, editor, pages 361-429. Academic Press. 1972.
- Jones, Clyde. "Body Temperatures of *Manis gigantea* and *Manis tricuspis*." *Journal of Mammalogy*, volume 54 (1973), pages 263-266.
- . "Comparative Ecology of Three Pteropid Bats in Rio Muni, West Africa." *Journal of Zoology*, volume 167 (1972), pages 353-370.
- Jones, T. C., R. W. Thorington, Jr., M. M. Hu, E. Adams, and R. W. Cooper. "Karyotypes of Squirrel Monkeys (*Saimiri sciureus*) from Different Geographic Regions." *American Journal of Physical Anthropology*, volume 38 (1973), pages 269-277.
- Karnella, Charles. "The Systematic Status of *Merluccius* in the Tropical Western Atlantic Ocean Including the Gulf of Mexico." *Fishery Bulletin*, volume 71, number 1 (1973), pages 83-91.
- Kleckner, Robert C., and Robert H. Gibbs, Jr. "Swimbladder Structure of Mediterranean Midwater Fishes and a Method of Comparing Swimbladder Data with Acoustic Profiles," in *Mediterranean Biological Studies*, Report to Office of Naval Research (1972), Contract No. N00014-67-A-0399-0007, processed, pages 230-281, appendix tables 475-613.
- Manville, R., and C. Jones. "Life Spans: Mammals," in *Biology Data Book*, P. Altman and D. Dittmer, editors, volume 1, 606 pages. Bethesda, Maryland: Federation of American Societies for Experimental Biology. 1972.
- Olson, Storrs L. "Paleornithology of St. Helena Island." Lecture delivered at the American Ornithologists' Union, Grand Forks, North Dakota, August 1972.
- . "A Whooping Crane from the Pleistocene of North Florida." *Condor*, volume 74, number 3 (Autumn 1972), page 341.
- . "The Generic Distinction of the Hispaniolan Woodpecker, *Chryserypes striatus*, (Aves: Picidae)." *Proceedings of the Biological Society of Washington*, volume 85, number 44 (30 December 1972), pages 499-508.
- . "The American Purple Gallinule, *Prophyrula martinica*, on Ascension and St. Helena Islands." *Bulletin of the British Ornithologists' Club*, volume 92, numbers 3 and 4 (June, August 1972), pages 92-93.



- Paradiso, John L., and Robert D. Fisher. "Mammals Imported into the United States in 1970." Bureau of Sport Fisheries and Wildlife, *Special Scientific Report—Wildlife*, number 161 (1972), ii + 62 pages.
- Paradiso, John L., and R. Nowak. "Red Wolf, *Canis rufus*." *Mammalian Species*, number 22 (1972), pages 1–4. American Society of Mammalogists.
- Peters, J. A. "The Time-Shared Computer as an Adjunct to Museum Exhibits." *Museum Journal*, volume 72 (1973), pages 143–145.
- . "On the Use of Cluster Analysis in Biogeography: A Reply." *Systematic Zoology*, volume 21, number 2 (1972), pages 242–244.
- Peters, James A., and B. Orejas-Miranda. "The Taxonomic Validity of *Apostolepis tenuis* Ruthven and *Apostolepis vittata* (Cope) (Serpentes: Colubridae)." *Copeia* (1972), pages 588–590.
- Pine, Ronald H. "A New Subgenus and Species of Murine Opossum (genus *Marmosa*) from Peru." *Journal of Mammalogy*, volume 53, number 2 (June 1972), pages 279–282.
- . "The Bats of the Genus *Carollia*." *Technical Monograph of the Texas Agricultural Experiment Station*, number 8 (September 1972), pages 1–125.
- Ripley, S. Dillon. [Review of] "Birds of North America." *Atlantic Naturalist*, volume 27, number 1 (1972), page 47.
- . "Hunting the Wren." *Atlantic Naturalist*, volume 27, number 4 (1972), pages 154–157.
- . "Museums in North America." *Journal of World History*, UNESCO, volume XIV, number 1 (1972), pages 176–186.
- . [Review of] "Tibet and Its Birds." *The Wilson Bulletin*, volume 85, number 1 (1973), pages 108–109.
- . "The Fragile Sea." *The Lamp* (house organ of the EXXON Corporation), volume 55, number 1 (Spring 1973), pages 2–5.
- . "Saving the Wood Duck *Aix sponsa*, Through Captive Breeding." *International Zoo Yearbook*, volume 13 (1973), pages 55–58.
- Skaar, P. D., R. B. Clapp, and R. C. Banks. "Re-evaluation of Some Montana Bird Records." *Condor*, volume 75, number 1 (1973), pages 132–133.
- Springer, V. G. "Synopsis of the Tribe Omobranchini with Descriptions of Three New Genera and Two New Species (Pisces: Blenniidae)." *Smithsonian Contributions to Zoology*, number 130 (1972), pages 1–31.
- . "Additions to Revisions of the Blennioid Fish Genera *Ecsenius* and *Entomacrodus*, with Descriptions of Three New Species of *Ecsenius*." *Smithsonian Contributions to Zoology*, number 134 (1972), pages 1–13.
- . "Career Opportunities in Ichthyology." American Society of Ichthyologists and Herpetologists special publication. 1973.
- Terborgh, J. W., and J. S. Weske. "Rediscovery of the Imperial Snipe in Peru." *Auk*, volume 89, number 3 (1972), pages 497–505.
- Thorington, R. W., Jr. "Proportions and Allometry in the Gray Squirrel, *Sciurus carolinensis*." *Nemouria*, number 8 (1972), pages 1–17.
- Vaurie, C., J. S. Weske, and J. W. Terborgh. "Taxonomy of *Schizoeaca fuliginosa* (Furnariidae) with Description of Two New Subspecies." *Bulletin of the British Ornithologists' Club*, volume 92, number 5 (1972), pages 142–144.
- Watson, George E. "Snipe," in *Encyclopedia Americana*, volume 25 (1973), page 107.
- . "Skua," in *Encyclopedia Americana*, volume 25 (1973), page 10.
- . "Loon," in *Encyclopedia Americana*, volume 17 (1973), page 735.
- Watson, George E., and George J. Divoky. "Pelagic Bird and Mammal

- Observations in the Eastern Chukchi Sea, Early Fall 1970." *United States Coast Guard Oceanographic Report*, number 50, pages 111–172, 6 tables, 40 figures.
- Watson, George E., Robert E. Shope, and Makram N. Kaiser. "A Ectoparasite and Virus Survey of Migratory Birds in the Eastern Mediterranean," in Cherepanov *et al.*, *Transcontinental Connections of Migratory Birds and Their Role in the Distribution of Arboviruses*, pages 176–180. Nauka, Novosibirsk, 1972.
- Wetmore, Alexander. "Additions to the Birds Recorded in Panama" (in cooperation with Pedro Galindo of the Gorgas Memorial Laboratory). *Proceedings of the Biological Society of Washington*, volume 85, (August 20, 1972), pages 309–312.
- . "The Birds of the Isthmus of Panama," in a Symposium on the Panama Canal. *Bulletin of the Biological Society of Washington*, number 2 (September 28, 1972), pages 211–216.
- . [Review of] "Alexander Skutch, A Naturalist in Costa Rica." *Auk*, volume 89, number 4 (October 20, 1972), pages 911–912.
- . "The Birds of the Republic of Panamá, Part 3. Passeriformes: Dendrocolaptidae (Woodcreepers) to Oxyruncidae (Sharpbills)." *Smithsonian Miscellaneous Collections*, volume 150, part 3 (December 12, 1972), pages i–iv, 1–631, frontispiece (color), 48 figures.
- . [Review of] Edwards, E. P., "Field Guide to the Birds of Mexico," *Atlantic Naturalist*, volume 27, number 4 (Winter 1972), page 196.
- Wilson, Don E. "Bat Faunas: A Trophic Comparison." *Systematic Zoology*, volume 22 (1973), pages 14–29.
- . [Review of] "About Bats." *Southwestern Naturalist*, volume 17 number 1 (1972), pages 109–111.
- Wilson, Don E., and J. S. Findley. "Randomness in Bat Homing." *American Naturalist*, volume 106, number 3 (1972), pages 418–424.
- Wilson, Don E., and D. H. Janzen. "Predation of *Scheelea* Palm Seeds by Bruchid Beetles: Seed Density and Distance from the Parent Palm." *Ecology*, volume 53, number 5 (1972), pages 954–959.
- Zug, George R. "Walk Pattern Analysis of Cryptodiran Turtle Gaits." *Animal Behavior*, volume 20 (1973), pages 439–443.
- . "A Critique of the Walk Pattern Analysis of Symmetrical Quadrupedal Gaits." *Animal Behavior*, volume 20 (1973), pages 436–438.
- . "Anuran Locomotion: Structure and Function. I. Preliminary Observations on Relation Between Jumping and Osteometrics of Appendicular and Postaxial Skeleton." *Copeia*, number 4 (1972), pages 613–624.
- . "Observations on the Ecology of the Marine Toad, *Bufo marinus*, in Papua New Guinea." Lecture given at the Herpetologists' League and Society for the Study of Amphibians and Reptiles meeting, August 1972.

### National Air and Space Museum

- Byttebier, Hugo T. "The Curtiss D-12 Aero Engine." *Smithsonian Annals of Flight*, number 7, (1972), vii + 109 pages, 46 figures.
- El-Baz, Farouk. "Al-Khwarizmi: A New-Found Basin on the Lunar Far Side." *Science*, volume 180, number 4091 (1973), pages 1173–1176.
- . "Apollo 16 and 17 Lunar Orbital Photography." *Lunar Science IV: Abstracts of Papers Presented at Fourth Lunar Science Conference*, Lunar Science Institute (1973), pages 215–216.
- . "The Lunar Dark Mantle: Its Distribution and Geologic Signifi-

- cance." *Lunar Science IV: Abstracts of Papers Presented at Fourth Lunar Science Conference*, Lunar Science Institute (1973), pages 217-218.
- . "The Later History of the Moon." Paper presented by title at the Annual Meeting of the Committee on Space Research, Konstanz, 1973.
- . "Apollo Lunar Explorations Uncover Secrets of Earth's Geology." Interview published in *Elements* of Dames and Moore, volume 2, number 2 (1973), pages 3-9.
- . "Award of Appreciation to R. A. Petrone." Presented at Fourth Lunar Science Conference, Houston, Texas, 5 March 1973.
- . "Astrogeology," in *A Special Issue: Earth Science in Geotimes*, volume 18, number 1, pages 16-17 and 34, 1972.
- . "Apollo Lunar Site Selection." Sigma Xi Lecture, University of Indiana, Bloomington, March 1973.
- . "Apollo 17 Preliminary Results." Seminar, National Air and Space Museum, Washington, D.C., March 1973.
- . "Lunar Stratigraphy." Seminar, Distinguished Lecture Series, University of Utah, Salt Lake City, June 1973.
- Evans, R. E., and Farouk El-Baz. "Visual Observations from Lunar Orbit on Apollo 17." *Lunar Science IV: Abstracts of Papers Presented at Fourth Lunar Science Conference*, Lunar Science Institute (1973), pages 231-232.
- . "Geologic Significance of Observations from Orbit on Apollo 17." Paper presented at the Annual Meeting of the Committee on Space Research, Konstanz, 1973.
- Mattingly, T. K., and Farouk El-Baz. "Impressions of the Lunar Highlands from the Apollo 16 Command Module." *Lunar Science IV: Abstracts of Papers Presented at Fourth Lunar Science Conference*, Lunar Science Institute (1973), pages 513-514.
- Mikesh, Robert C. "Japan's World War II Balloon Bomb Attacks on North America." *Smithsonian Annals of Flight*, number 9, (1973), vi + 85 pages, 90 figures.
- Mikesh, Robert C., and Claudia M. Oakes. *The National Air and Space Museum Official Souvenir Book*, (1973), 31 pages, 35 figures.

### Smithsonian Astrophysical Observatory

- Ahmad, I. A., and W. A. Deutschman. "Ultraviolet Photometry of the Moon with the Telescope Experiment on the OAO-II." *Astronomical Journal*, volume 77 (1972), pages 692-694.
- Aksnes, K. "On the Use of the Hill Variables in Artificial Satellite Theory: Brouwer's Theory." *Astronomy and Astrophysics*, volume 17 (1972), pages 70-75.
- . "Position and Velocity Components for Jupiter VIII-XII." *Astronomical Journal*, volume 78 (1973), page 121.
- Allison, A. C. "Viscosity of Atomic Hydrogen." *Journal of Chemical Physics*, volume 56 (1972), pages 6266-6267.
- Avrett, E. H. "Stellar Chromospheric Models." Pages 27-41, in S. D. Jordan and E. H. Avrett, editors, *Stellar Chromospheres, Proceedings of the International Astronomical Union Colloquium No. 19*. NASA SP-317, 1973.
- Avrett, E. H., and J. R. Baldwin. "Free-Free and Balmer Line Emission from Optically Thick Stellar Shells." *Publications of the Astronomical Society of the Pacific*, volume 84 (1972), pages 633-634.



- Avrett, E. H., R. J. Davis, W. A. Deutschman, K. L. Haramundanis, C. Payne-Gaposchkin, R. L. Kurucz, E. Peytremann, and R. E. Schild. "Report on the Telescope Ultraviolet Observations from the OAO-2 Satellite and Associated Research at the Smithsonian Astrophysical Observatory." Presented at the 16th International COSPAR Meeting, Konstanz, Germany, May 1973.
- Bottcher, C., A. Dalgarno, and E. L. Wright. "Collision-Induced Absorption in Alkali-Metal-Atom-Inert-Gas Mixtures." *Physical Review A*, volume 7 (1973), pages 1606-1609.
- Brace, L. H., R. F. Theis, and A. Dalgarno. "The Cylindrical Electrostatic Probes for Atmosphere Explorer #-C, #-D, and #-E." *Radio Science*, volume 8 (1973), pages 341-348.
- Brownlee, D. E., and P. W. Hodge. "Interplanetary Dust: A Source of Primitive Matter." Presented at the Symposium on Cosmochemistry, Smithsonian Astrophysical Observatory, Cambridge, Massachusetts, August 1972.
- Brownlee, D. E., W. Bucher, and P. W. Hodge. "Primary and Secondary Micrometeoroid Impact Rate on the Lunar Surface: A Direct Measurement." Pages 143-151, in *Analysis of Surveyor 3 Material and Photographs Returned by Apollo 12*. NASA AP-284, 1972.
- . "Whiskers on the Moon." Pages 236-238, in *Analysis of Surveyor 3 Material and Photographs Returned by Apollo 12*. NASA SP-284, 1972.
- Carleton, N. P., and W. Traub. "Detection of Molecular Oxygen on Mars." *Science*, volume 177 (1972), pages 988-992.
- . "A Search for Interstellar Lithium." Presented at the Symposium on Cosmochemistry, Smithsonian Astrophysical Observatory, Cambridge, Massachusetts, August 1972.
- Caves, T. C., and A. Dalgarno. "Model Potential Calculations of Lithium Transitions." *Journal of Quantitative Spectroscopy and Radiative Transfer*, volume 12 (1972), pages 1539-1552.
- Chaisson, E. J. "Microwave Spectroscopic Mapping of Gaseous Nebulae. I. Excited Hydrogen, Helium, and Carbon." *Astrophysical Journal*, volume 182 (1973), pages 767-780.
- Chaisson, E. J., and D. F. Dickinson. "OH in the Hoffman Infrared Sources." *Astrophysical Letters*, volume 12 (1972), pages 119-122.
- Chebotaiev, G. A., E. I. Kazimirschak-Polonskaya, and B. G. Marsden, editors. *The Motion, Evolution of Orbits, and Origin of Comets, Proceedings of the International Astronomical Union Symposium No. 45*. Dordrecht, Holland: D. Reidel Publishing Company, 1972.
- Cherniack, J. R. "A More General System for Poisson Series Manipulation." *Celestial Mechanics*, volume 7 (1973), pages 107-121.
- Cook, A. F. "Discrete Levels of Beginning Height of Meteors in Streams." *Smithsonian Contributions to Astrophysics*, number 14 (1973), 10 pages.
- Cook, A. F., F. A. Franklin, and F. D. Palluconi. "Saturn's Rings — A Survey." *Icarus*, volume 18 (1973), pages 317-337.
- Cook, A. F., B.-A. Lindblad, B. G. Marsden, R. E. McCrosky, and A. Posen. "Yet Another Stream Search among 2401 Photographic Meteors." *Smithsonian Contributions to Astrophysics*, number 15 (1973), 5 pages.
- Dalgarno, A. "Applications in Aeronomy." Pages 381-398, in *Physics of Electronics and Atomic Collisions*, VII ICPEAC. Amsterdam, Holland: North-Holland Publishing Company, 1972.
- . "Atomic Processes in Astrophysics." Pages 287-337, in M. Chretien and E. Lipworth, editors, *Brandeis University Summer Institute in Theoretical Physics 1969*, volume II. New York: Gordon & Breach, 1972.

- Dalgarno, A., H. Doyle, and M. Oppenheimer. "Calculation of Photoabsorption Processes in Helium." *Physical Review Letters*, volume 29 (1972), pages 1051-1052.
- Dalgarno, A., W. B. Hanson, N. W. Spencer, and E. R. Schmerling. "The Atmosphere Explorer Mission." *Radio Science*, volume 8 (1973), pages 263-266.
- Dalgarno, A., and R. A. McCray. "The Formation of Interstellar Molecules from Negative Ions." *Astrophysical Journal*, volume 181 (1973), pages 95-100.
- . "Heating and Ionization of HI Regions." *Annual Reviews of Astronomy and Astrophysics*, volume 10 (1972), pages 375-426.
- Davis, R. J., W. A. Deutschman, and K. L. Haramundanis. *Telescope Catalog of Ultraviolet Stellar Observations*. Washington, D.C.: Smithsonian Institution Press, 1973.
- Deutschman, W. A. "Orbital Operation and Calibration of SEC-Vidicons in the Telescope Experiment." *Advances in Electronic and Electron Physics*, volume 33 (1973), pages 925-935.
- Dickinson, D. F. "Detection of Cyanoacetylene at 18 GHz." *Astrophysical Letters*, volume 12 (1972), pages 235-236.
- . "Detection of Silicon Monoxide at 87 GHz." *Astrophysical Journal (Letters)*, volume 175 (1972), pages L43-L46.
- Dickinson, D. F., D. P. Bechis, and A. H. Barrett. "New H<sub>2</sub>O Sources Associated with Infrared Stars." *Astrophysical Journal*, volume 180 (1973), pages 831-844.
- Dickinson, D. F., and E. Chaisson. "Long-Period Variables: Correlation of Stellar Period with OH Radial Velocity Pattern." *Astrophysical Journal (Letters)*, volume 181 (1973), pages L135-L138.
- Dickinson, D. F., and B. E. Turner. "Classification of New OH Sources." *Astrophysical Letters*, volume 11 (1972), pages 1-5.
- Drake, M. J., G. J. Taylor, U. B. Marvin, J. A. Wood, and M. E. Hallam. "Preliminary Data and Speculation on Taurus-Littrow." *Transactions of the American Geophysical Union*, volume 54 (1973), pages 584-585.
- Fazio, G. G. "High-Energy Discrete Sources." Pages 303-323, in H. Bradt and R. Giacconi, editors, *X- and Gamma-Ray Astronomy, Proceedings of the International Astronomical Union Symposium No. 55*. Dordrecht-Holland: D. Reidel Publishing Company, 1973.
- Fazio, G. G., H. F. Helmken, E. O'Mongain, and T. C. Weekes. "Detection of High-Energy Gamma Rays from Crab Nebula." *Astrophysical Journal (Letters)*, volume 175 (1972), pages L117-L122.
- Fireman, E. L. "Solar Flares During the Past 1000 Years as Revealed by Lunar Studies." Presented at the First European Astronomical Meeting, Heidelberg, Germany, October 1972.
- Fireman, E. L., and G. Spannagel. "Argon-37, Argon-39, and Tritium Radioactivities in the Haverö Meteorite." *Meteoritics*, volume 7 (1972), pages 559-564.
- Flannery, M. R. "Three-Body Recombination of Positive and Negative Ions." Pages 1-90, in E. W. McDaniel and M. R. C. McDowell, editors, *Case Studies in Atomic Collision Physics*, volume II. Amsterdam, Holland: North-Holland Publishing Company, 1972.
- Frogel, J. A., D. E. Kleinmann, W. Kunkel, E. P. Ney, and D. W. Strecker. "Multicolor Photometry of the M Dwarf Proxima Centauri." *Publications of the Astronomical Society of the Pacific*, volume 84 (1972), pages 581-582.
- Gaposchkin, E. M. "Analysis of Pole Position from 1846 to 1970." Pages 19-32, in P. Melchior and S. Yumi, editors, *Rotation of the Earth, Proceedings of the International Astronomical Union Symposium No. 48*. Dordrecht-Holland: D. Reidel Publishing Company, 1972.
- . "Pole Position Studied with Artificial Earth Satellites." Pages 128-

- 130, in P. Melchior and S. Yumi, editors, *Rotation of the Earth, Proceedings of the International Astronomical Union Symposium No. 48*. Dordrecht-Holland: D. Reidel Publishing Company, 1972.
- . "Smithsonian Institution Standard Earth III." Presented at the American Geophysical Union Meeting, Washington, D.C., April 1973.
- Gaposchkin, E. M., J. Latimer, and G. Veis. "Smithsonian Institution Standard Earth III (Coordinates)." Presented at the 1st International Symposium on the Use of Artificial Satellites for Geodesy and Geodynamics, Athens, Greece, May 1973.
- Gingerich, O. "Johannes Kepler and the New Astronomy." *Quarterly Journal of the Royal Astronomical Society*, volume 13 (1972), pages 346–360.
- . "Amerykanskie Copernicana (in Polish and Russian)." *Ameryka*, number 170 (1973), pages 34–36.
- . "The Foundation of Modern Science (in fourteen different language editions)." *UNESCO Courier*, April (1973), pages 10–13.
- . "Harlow Shapley and Mt. Wilson." *Bulletin of the American Academy of Arts and Sciences*, volume 26, number 7 (1973), pages 10–24.
- . "The Role of Erasmus Reinhold and the Prutenic Tables in the Dissemination of the Copernican Theory." *Studia Copernicana*, Polska Akademia Nauk, Wrocław, volume 6 (1973), pages 43–62 and 123–125.
- . "Kepler's Treatment of Redundant Observations or, the Computer versus Kepler Revisited." Pages 307–314, in F. Krafft, K. Meyer, and B. Sticker, editors, *Proceedings of the Internationales Kepler-Symposium, Weil der Stadt 1971*. Hildesheim, Germany: Gerstenberg Verlag, 1973.
- . "Johannes Kepler." Pages 289–312, in *Dictionary of Scientific Biography*, volume 7. New York: Scribner's, 1973.
- . "N.-L. Lacaille." Pages 542–545, in *Dictionary of Scientific Biography*, volume 7. New York: Scribner's, 1973.
- Gingerich, O., D. King, and G. Saliba. "The 'Abd al-A'imma astrolabe forgeries." *Journal of the History of Astronomy*, volume 3 (1972), pages 188–199.
- Gingerich, O., and W. Walderman, translators. "Johannes Kepler: Preface to the *Rudolphine Tables*." *Quarterly Journal of the Royal Astronomical Society*, volume 13 (1972), pages 360–373.
- Glass, I., and J. L. Elliot. "An Interferometric Seeing Test on Mt. Wilson." *Astronomical Journal*, volume 77 (1972), page 523.
- Grossi, M. D., R. B. Southworth, and S. K. Rosenthal. "Radar Observations of Meteor Winds above Illinois." *Progress in Astronautics and Aeronautics*, volume 27 (1972), pages 205–248.
- Grindlay, J. E. "Detection of Pulsed Gamma Rays of  $\sim 10^{12}$  eV from the Pulsar in the Crab Nebula." *Astrophysical Journal (Letters)*, volume 174 (1972), pages L9–L17.
- Hallam, M. "Heat Sources for Early Differentiation of the Lunar Interior (abstract)." *Transactions of the American Geophysical Union*, volume 54 (1973), page 344.
- . "Initial Lunar Temperature Profiles and the Accumulation Time of the Proto-Moon (abstract)." *Meteoritics*, volume 8 (1973), page 43.
- Haramundanis, K., and C. Payne-Gaposchkin. "Intrinsic Ultraviolet Colors from OAO-2 Telescope Observations for Stars on the Main Sequence." *Astronomical Journal*, volume 78 (1973), pages 395–400.
- Hawkins, G. S. "Preliminary Results of an Investigation of Astronomical Alignments of Structural Antiquities in Egypt." Presented at the Institute d'Egypte, Cairo, December 1972.



- . "Astronomical Alignments in Britain, Egypt, and Peru." Presented at the Royal Society Meeting, London, December 1972.
- . *Beyond Stonehenge*. New York: Harper & Row, 1973.
- . "Astro-Archaeology—The Unwritten Evidence." Presented at the American Association for the Advancement of Science Meeting, Mexico City, Mexico, June 1973.
- Hegyí, D. J., W. A. Traub, and N. P. Carleton. "The Cosmic Background Radiation at 1.32mm." Presented at the American Astronomical Society Meeting, Las Cruces, New Mexico, January 1973.
- Helmken, H. F., and J. A. Hoffman. "Gamma-Ray Observations of the Galactic Center." *Nature (Physical Science)*, volume 243 (1973), pages 6–8.
- Hodge, P. W. "Some Current Studies of Galaxies." *Sky and Telescope*, volume 44 (1972), pages 23–27.
- . *Astronomy Study Guide*. New York: McGraw-Hill Book Co., 88 pages, 1973.
- . *Slides for Astronomy*. New York: McGraw-Hill Book Co., 255 slides, 1973.
- . "New Members of the Local Group Galaxies." Pages 198–201, in *McGraw-Hill Yearbook of Science and Technology*. New York: McGraw-Hill Book Co., 1973.
- . "The Structure and Content of NGC 205." *Astrophysical Journal*, volume 182 (1973), pages 671–696.
- . "On the (U–B) Color Indices and Hydrogen Line Strengths of Elliptical Galaxies." *Publications of the Astronomical Society of the Pacific*, volume 85 (1973), pages 286–288.
- . "Lunar and Terrestrial Impact Crater Spherules." *The Moon*, volume 7 (1973), pages 483–486.
- Hodge, P. W., and N. Laulainen. "Transparenz und Trübung der Atmosphäre." *Umschau in Wissenschaft und Technik*, volume 73 (1973), pages 325–331.
- Hodge, P. W., N. Laulainen, and R. Charlson. "Astronomy and Air Pollution." *Science*, volume 178 (1972), pages 1123–1124.
- Jacchia, L. G. "Comments on the Paper, 'On Empirical Models of the Upper Atmosphere in the Polar Regions.'" *Planetary and Space Science*, volume 21 (1973), pages 883–884.
- . "Atmospheric Models in the Region from 110 to 2000 km." Pages 227–338, in *COSPAR International Reference Atmosphere 1972*, compiled by COSPAR Working Group IV. Berlin: Akademie-Verlag, 1973.
- Jacchia, L. G., I. G. Campbell, and J. W. Slowey. "A Study of the Diurnal Variation in the Thermosphere as Derived by Satellite Drag." Presented at the 16th International COSPAR Meeting, Konstanz, Germany, May 1973.
- Jacchia, L. G., and J. W. Slowey. "Atmospheric Densities at Heights between 300 and 900 km Obtained from the Drag of 5 Satellites during the Interval 22 July to 16 August 1972." Pages 784–791, in H. E. Coffey, editor, *Collected Data Reports on August 1972 Solar Terrestrial Events, Report UAG-28, Part III*. Boulder, Colorado: WDC-A for Solar Terrestrial Physics, 1973.
- Jacchia, L. G., J. W. Slowey, and I. G. Campbell. "An Analysis of the Solar-Activity Effects in the Upper Atmosphere." Presented at the 16th International COSPAR Meeting, Konstanz, Germany, May 1973.
- Jordan, S. D., and E. H. Avrett, editors. *Stellar Chromospheres, Proceedings of the International Astronomical Union Colloquium No. 19*. NASA SP-317, 318 pages, 1973.

- Jura, M., and A. Dalgarno. "Time-Dependent Models of the Interstellar Gas." *Astrophysical Journal*, volume 174 (1972), pages 365-376.
- Kleinmann, D. E. "Bright Infrared Sources in M17." *Astrophysical Letters*, volume 13 (1973), pages 49-54.
- Koch, D., S. E. Ball, Jr., M. Campbell, J. P. Delvaille, K. Greisen, B. McBreen, D. R. Hearn, H. F. Helmken, and G. G. Fazio. "Performance of a Gas-Cherenkov Gamma-Ray Telescope." *Nuclear Instruments and Methods*, volume 108 (1973), pages 349-353.
- Kozai, Y., and H. Kinoshita. "Effects of Motion of the Equatorial Plane on the Orbital Elements of an Earth Satellite." *Celestial Mechanics*, volume 7 (1973), pages 356-366.
- Latham, D. W. "Report on the Cambridge Meeting of the AAS Working Group on Photographic Materials in Astronomy. Part I." *American Astronomical Society Photo-Bulletin*, volume 4, number 1 (1972), pages 17-21.
- . "Report on the Cambridge Meeting of the AAS Working Group on Photographic Materials in Astronomy. Part II." *American Astronomical Society Photo-Bulletin*, volume 4, number 2 (1972), pages 6-15.
- Laughlin, C., and G. A. Victor. "Model Potential Calculations for Two-Valence Electron Systems." Pages 247-255, in S. J. Smith and G. K. Walters, editors, *Atomic Physics*, volume 3. New York: Plenum Press, 1973.
- Laulainen, N., and P. W. Hodge. "World-Wide Atmospheric Extinction Data; A Summary of Sources." Project ASTRA Publication Number 24 (1972), 9 pages.
- Lecar, M. "Bode's Law." *Nature (Physical Science)*, volume 242 (1973), pages 318-319.
- Lehr, C. G., M. R. Pearlman, and J. A. Monjes. "The SAO Lunar Laser." Pages 197-204, in S. A. Bowhill, L. D. Jaffe, and M. J. Rycroft, editors, *Space Research XII*. Berlin: Akademie-Verlag, 1972.
- Lehr, C. G., S. J. Criswell, J. P. Ouellette, P. W. Sozanski, J. D. Mulholland, and P. J. Shelus. "Laser Transit-Time Measurements between the Earth and the Moon with a Transportable System." *Science*, volume 80 (1973), pages 954-955.
- Lehr, C. G., J. P. Ouellette, P. W. Sozanski, J. T. Williams, S. J. Criswell, and M. Mattei. "Lunar Range Measurements with a High-Radiance Frequency-Doubled Neodymium-Glass Laser System." *Applied Optics*, volume 12 (1973), pages 946-947.
- Lehr, C. G., C. R. H. Tsiang, G. M. Mendes, and R. J. Eldred. "Laser Pulse Analysis." Presented at the 1st International Symposium on the Use of Artificial Satellites for Geodesy and Geodynamics, Athens, Greece, May 1973.
- Lester, J. B. "A Spectroscopic Study of the Strong Helium-Line Star H.D. 37017." *Astrophysical Journal*, volume 178 (1972), pages 743-761.
- Levy, H., II. "Photochemistry of the Lower Troposphere." *Planetary and Space Science*, volume 20 (1972), pages 919-935.
- . "The Tropospheric Budgets for Methane, Carbon Monoxide and Related Species." Presented at the Symposium on Sources, Sinks, and Concentrations of Carbon Monoxide and Methane in the Earth's Environment, St. Petersburg, Florida, August 1972.
- . "Photochemistry of Minor Constituents in the Troposphere." *Planetary and Space Science*, volume 21 (1973), pages 575-591.
- Litvak, M. M. "Non-Equilibrium Processes in Interstellar Molecules." Pages 201-276, in T. R. Carson and M. J. Roberts, editors, *Atoms and Molecules in Astrophysics*. New York: Academic Press, 1972.
- . "Radiative Transport in Interstellar Masers." *Astrophysical Journal*, volume 182 (1973), pages 711-730.

- . "Masers and Optical Pumping." Pages 268–288 in M. A. Gordon and L. E. Snyder, editors, *Molecules in the Galactic Environment*. New York: John Wiley & Sons, 1973.
- Lundquist, C. A. "Concepts of the Utilization of Satellite-to-Ocean Altitudes." Presented at the Meeting of the Marine Technology Society, Washington, D.C., September 1972.
- Lundquist, C. A., R. H. Gay, and G. E. O. Giacaglia. "Spherical Sampling Functions: Generalization and Applications." Presented at the Ninth International Symposium on Geophysical Theory and Computers, Banff, Canada, August 1972.
- Lundquist, C. A., and G. E. O. Giacaglia. "A Geopotential Representation with Sampling Functions." Pages 125–131, in S. W. Henriksen, A. Mancini, and B. H. Chovitz, editors, *The Use of Artificial Satellites for Geodesy, Geophysical Monograph Series*, volume 15. Washington, D.C.: American Geophysical Union, 1972.
- Lundquist, C. A., G. E. O. Giacaglia, and R. H. Gay. "Application of Sampling Functions to Earth Gravity Models." Presented at the American Geophysical Union Meeting, Washington, D.C., August 1972.
- Lundquist, C. A., and H. Levy II. "Comparison of Atmospheric Measurement Techniques at Mt. Hopkins Observatory." Presented at the Symposium on the Use of Astronomical Techniques for the Study of Atmospheric Deterioration, Seattle, Washington, April 1972.
- Maeder, A., and E. Peytremann. "Uniformly Rotating Stars with Hydrogen- and Metallic-Line Blanketed Model Atmospheres." *Astronomy and Astrophysics*, volume 21 (1972), pages 279–284.
- Marsden, B. G. "Comets in 1971." *Quarterly Journal of the Royal Astronomical Society*, volume 13 (1972), pages 415–435.
- . "Annual Report of the Central Bureau for Astronomical Telegrams." *International Astronomical Union Information Bulletin*, number 28 (1972), pages 8–9.
- . "Comet Orbits: Prediction, Nongravitational Effects." Pages 123–141, in G. P. Kuiper and E. Roemer, editors, *Comets: Scientific Data and Missions*. Tucson, Arizona: University of Arizona, Lunar and Planetary Laboratory, 1972.
- . "General Remarks on Orbit and Ephemeris Computation." Pages 36–38, in G. A. Chebotarev, E. I. Kazimirschak-Polonskaya, and B. G. Marsden, editors, *The Motion, Evolution of Orbits, and Origin of Comets, Proceedings of the International Astronomical Union Symposium No. 45*. Dordrecht, Holland: D. Reidel Publishing Company, 1972.
- . "Nongravitational Effects on Comets: The Current Status." Pages 135–143, in G. A. Chebotarev, E. I. Kazimirschak-Polonskaya, and B. G. Marsden, editors, *The Motion, Evolution of Orbits, and Origin of Comets, Proceedings of the International Astronomical Union Symposium No. 45*. Dordrecht, Holland: D. Reidel Publishing Company, 1972.
- . "The Motion of Hidalgo and the Mass of Saturn." Pages 239–243, in G. A. Chebotarev, E. I. Kazimirschak-Polonskaya, and B. G. Marsden, editors, *The Motion, Evolution of Orbits, and Origin of Comets, Proceedings of the International Astronomical Union Symposium No. 45*. Dordrecht, Holland: D. Reidel Publishing Company, 1972.
- Marsden, B., Z. Sekanina, and D. K. Yeomans. "Comets and Nongravitational Forces. V." *Astronomical Journal*, volume 78 (1973), pages 211–225.



- Martin, R. W., and F. D. Young. "Considerations for an Earth Physics Information-Management Service." Pages 283-288, in S. W. Henriksen, A. Mancini, and B. H. Chovitz, editors, *The Use of Artificial Satellites for Geodesy, Geophysical Monograph Series*, volume 15. Washington, D.C.: American Geophysical Union, 1972.
- Marvin, U. B. *Continental Drift: The Evolution of a Concept*, Washington, D.C.: Smithsonian Institution Press, 1973.
- . *Apollo 16 Coarse Fines (4-10 mm): Sample Classification and Inventory*. NASA Manned Spacecraft Center, 143 pages, 1972.
- Marvin, U. B., J. B. Reid, Jr., G. J. Taylor, and J. A. Wood. "Lunar Mafic Green Glasses, Howardites, and the Composition of Undifferentiated Lunar Material." Pages 507-509, in C. Watkins, editor, *Lunar Science—III*. Houston, Texas: Lunar Science Institute, 1972.
- Marvin, U. B., and J. A. Wood. "The Haverö Ureilite: Petrographic Notes." *Meteoritics*, volume 7 (1972), pages 601-610.
- Megrue, G. H. "Spatial Distribution of  $^{40}\text{Ar}/^{39}\text{Ar}$  ages in breccia 14301." *Journal of Geophysical Research*, volume 78 (1973), pages 3216-3221.
- Megrue, G. H., E. Norton, and D. W. Strangway. "Tectonic History of the Ethiopian Rift as Deduced by K-Ar Ages and Paleomagnetic Measurements of Basaltic Dikes." *Journal of Geophysical Research*, volume 77 (1972), pages 5744-5754.
- Megrue, G. H., and F. Steinbrunn. "Classification and Source of Lunar Soils; Clastic Rocks; and Individual Mineral, Rock, and Glass Fragments from Apollo 12 and 14 Samples as Determined by the Concentration Gradients of the Helium, Neon, and Argon Isotopes." Pages 1899-1916, in *Proceedings of the Third Lunar Science Conference, Geochimica et Cosmochimica Acta*, volume 2, supplement 3. Cambridge, Massachusetts: The MIT Press, 1972.
- Mertz, L. N. "Maser Theory of Pulsars." *Bulletin of the American Astronomical Society*, volume 4 (1972), page 221.
- . "Configuration for a Multichannel Fabry-Perot Spectroheliograph." *Optics Communications*, volume 6 (1972), pages 282-283.
- . "Improved Polarization Interferometer for Fourier Spectroscopy." *Optics Communications*, volume 6 (1972), pages 354-355.
- Michellini, R. D., and M. D. Grossi. "Very Long Baseline Observations of Radio Emissions from Geostationary Satellites." Pages 517-525, in S. A. Bowhill, L. D. Jaffe, and M. J. Rycroft, editors, *Space Research XII.*, Berlin: Akademie-Verlag, 1972.
- Mitler, H. E. "Cosmic-Ray Production of Deuterium,  $\text{He}^3$ , Lithium, Beryllium, and Boron in the Galaxy." *Astrophysics and Space Science*, volume 17 (1972), pages 186-218.
- Mohr, P. A. "Surface Structure and Plate Tectonics of Afar." *Tectonophysics*, volume 15 (1972), pages 3-18.
- . "Crustal Deformation Rate and the Evolution of the Ethiopian Rift." Pages 759-768, in D. H. Tarling and S. K. Runcorn, editors, *Continental Drift, Sea Floor Spreading and Plate Tectonics: Implications to the Earth Sciences*. London: Academic Press, 1973.
- . "Ethiopian Rift Geodimeter Surveys." *Bulletin of the Geophysical Observatory, Addis Ababa*, number 14 (1973), pages 1-91.
- Noyes, R. W., A. K. Dupree, M. C. E. Huber, W. H. Parkinson, E. M. Reeves, and G. L. Withbroe. "Extreme Ultraviolet Emission from Solar Prominences." *Astrophysical Journal*, volume 178 (1972), pages 515-525.

- Noyes, R. W., T. R. Ayres, and D. N. B. Hall. "Equator-Pole Temperature Difference and the Solar Oblateness." *Solar Physics*, volume 28 (1973), pages 343-345.
- Noyes, R. W., and D. N. B. Hall. "Thermal Oscillations in the High Solar Photosphere." *Astrophysical Journal (Letters)*, volume 176 (1972), pages L89-L92.
- Noyes, R. W., and G. L. Withbroe. "The Solar EUV-Emitting Plasma." *Space Science Reviews*, volume 13 (1972), pages 612-637.
- O'Mongain, E. "Limit to Pulses of Radio Frequency Emission from the Galactic Centre." *Nature, Letter*, volume 242 (1973), pages 136-137.
- Oppenheimer, M., C. Bottcher, and A. Dalgarno. "The Charge Transfer Spectrum of (LiNa) + ." *Chemical Physics Letters*, volume 15 (1972), pages 24-26.
- Parsons, S. B., and E. Peytremann. "Comparison of Telescope Magnitudes with Model-Atmosphere Predictions for A, F, and G Supergiants." *Astrophysical Journal*, volume 180 (1973), pages 71-79.
- Ramasstry, J., B. Rosenbaum, R. D. Michelini, and S. Ross. "Precision Tracking and Geodesy through VLBI Observations of Extragalactic Sources and Earth Satellites." Presented at the 16th International COSPAR Meeting, Konstanz, Germany, May 1973.
- Reid, J. B., Jr. "Olivine-Rich, True Spinel-Bearing Anorthosites from Apollo 15 and Luna 20 Soils." Pages 154-157, in J. W. Chamberlain and C. Watkins, editors, *The Apollo 15 Lunar Samples*, Houston, Texas: Lunar Science Institute, 1973.
- Schild, R. E. "A Spectroscopically Distinguished Class of Be Stars." *Astrophysical Journal*, volume 179 (1973), pages 221-230.
- . "The Energy Distribution of NGC 1068 and of Other Stellar Systems." *Astrophysical Journal*, volume 178 (1972), pages 617-621.
- . "Spectral Types and UBV Photometry of G-K Giants at the North Galactic Pole." *Astronomical Journal*, volume 78 (1973), pages 37-44.
- Sekanina, Z. "Rotation Effects in the Nongravitational Parameters of Comets." Pages 294-300, in G. A. Chebotarev, E. I. Kazimirschak-Polonskaya, and B. G. Marsden, editors, *The Motion, Evolution of Orbits, and Origin of Comets, Proceedings of the International Astronomical Union Symposium No. 45*, Dordrecht, Holland: D. Reidel Publishing Company, 1972.
- . "A Model for the Nucleus of Encke's Comet." Pages 301-307, in G. A. Chebotarev, E. I. Kazimirschak-Polonskaya, and B. G. Marsden, editors, *The Motion, Evolution of Orbits, and Origin of Comets, Proceedings of the International Astronomical Union Symposium No. 45*, Dordrecht, Holland: D. Reidel Publishing Company, 1972.
- . "Statistical Model of Meteor Streams. III. Stream Search Among 19303 Radio Meteors." *Icarus*, volume 18 (1972), pages 253-284.
- Sekanina, Z., and F. D. Miller. "Comet Bennett 1970 II." *Science*, volume 179 (1973), pages 565-567.
- Simon, G. W., and R. W. Noyes. "Solar Rotation as Measured in EUV Chromospheric and Coronal Lines." *Solar Physics*, volume 26 (1972), pages 8-14.
- Slowey, J. W. "Earth Radiation Pressure and the Determination of Density from Atmospheric Drag." Presented at the 16th International COSPAR Meeting, Konstanz, Germany, May 1973.
- Smith, S., and E. L. Fireman. "Ages of Recently Fallen Meteorites." *Journal of Geophysical Research*, volume 78 (1973), pages 3249-3259.
- Spannagel, G., and E. L. Fireman. "Stopping Rate of Negative Cosmic-Ray Muons near Sea Level." *Journal of Geophysical Research*, volume 77 (1972), pages 5351-5359.



- Stephens, T. L., and A. Dalgarno. "Spontaneous Radiative Dissociation in Molecular Hydrogen." *Journal of Quantitative Spectroscopy and Radiative Transfer*, volume 12 (1972), pages 569–586.
- Taylor, G. J. "The Composition of the Lunar Highlands: Evidence from Modal and Normative Plagioclase Contents in Anorthositic Lithic Fragments and Glasses." *Earth and Planetary Science Letters*, volume 16 (1972), pages 263–268.
- . "Anorthositic Lithic Fragments in Apollo 15 Soils and Fractional Crystallization in the Early Lunar Crust." Pages 165–168, in J. W. Chamberlain and C. Watkins, editors, *The Apollo 15 Lunar Samples*. Houston, Texas: Lunar Science Institute, 1973.
- Taylor, G. J., U. B. Marvin, J. B. Reid, Jr., and J. A. Wood. "Noritic Fragments in the Apollo 14 and 12 Soils and the Origin of Oceanus Procellarum." Pages 995–1014, in *Proceedings of the Third Lunar Science Conference, Geochimica et Cosmochimica Acta*, volume 1 supplement 3. Cambridge, Massachusetts: The MIT Press, 1972.
- Taylor, G. J., M. J. Drake, J. A. Wood, and U. B. Marvin. "The Luna 20 Lithic Fragment, and the Composition and Origin of the Lunar Highlands." *Geochimica et Cosmochimica Acta*, volume 37 (1973), pages 1087–1106.
- Taylor, G. J., M. J. Drake, J. A. Wood, and U. B. Marvin. "Petrogenesis of KREEP-rich and KREEP-poor nonmare rocks." Pages 708–710, in J. Chamberlain and C. Watkins, editors, *Lunar Science IV*. Houston, Texas: Lunar Science Institute, 1973.
- Traub, W. A., and N. P. Carleton. "Motions in the Upper Atmosphere of Venus from Spectroscopic Observations." Presented at NATO Advanced Study Institute on Planetary Atmospheres, Istanbul, Turkey, 1972.
- . "A Search for H<sub>2</sub>O and O<sub>2</sub> on Venus." Presented at the Planetary Sciences Division of the American Astronomical Society Meeting, Tucson, Arizona, March 1973.
- Trauger, J. T., F. L. Roesler, N. P. Carleton, and W. A. Traub. "Measurement of the D/H Ratio in the Atmosphere of Jupiter with a PEPSIOS Spectrometer." Presented at the Planetary Sciences Division of the American Astronomical Society Meeting, Tucson, Arizona, March 1973.
- Ulmschneider, P., and W. Kalkofen. "The Effect of Mechanical Waves on Empirical Solar Models." *Solar Physics*, volume 28 (1973), pages 3–7.
- Vernazza, J. E. "On the Difference between Poles and Equator on the Region of Formation of the Lyman Continuum (abstract)." *Bulletin of the American Astronomical Society*, volume 4 (1972), page 394.
- . "On the Density and Temperature Structure of the Solar Chromosphere." Pages 71–76, in S. D. Jordan and E. H. Avrett, editors, *Stellar Chromospheres, Proceedings of the International Astronomical Union Colloquium No. 19*. NASA SP-317, 1972.
- Vernazza, J. E., and R. W. Noyes. "Equator-Pole Differences in the Solar Chromosphere from Lyman-Continuum Data." *Solar Physics*, volume 26 (1972), pages 335–342.
- Vessot, R. F. C. "Lectures on Frequency Stability and Clocks and on the Gravitational Redshift Experiment." Presented at Enrico Fermi International School of Physics, Varenna, Italy, July 1972.
- Visvanathan, N., and J. L. Elliot. "Variations of the Radio Source OJ 287 at Optical Wavelengths." *Astrophysical Journal*, volume 179 (1973), pages 721–730.
- Weisheit, J. C., and A. Dalgarno. "Ionization Structure of Interstellar Carbon." *Astrophysical Letters*, volume 12 (1972), pages 103–1060.



- Weymann, R. J., and N. P. Carleton. "The Multiple-Mirror Telescope Project." *Sky and Telescope*, volume 44 (1972), pages 159–163.
- Whipple, F. L. "The Incentive of a Bold Hypothesis: Hyperbolic Meteors and Comets." *Annals of the New York Academy of Sciences*, volume 198 (1972), pages 219–224.
- . "The Origin of Comets." Pages 401–408, in G. A. Chebotarev, E. I. Kazimirschak-Polonskaya, and B. G. Marsden, editors, *The Motion, Evolution of Orbits, and Origin of Comets, Proceedings of the International Astronomical Union Symposium No. 45*. Dordrecht-Holland: D. Reidel Publishing Company, 1972.
- . "Why Missions to Comets and Asteroids?" *Astronautics and Aeronautics*, volume 10 (1972), pages 12–16.
- . "Selection of Astronomy Experiments for Space." Pages 381–384, in *Astronomy from a Space Platform*, volume 28, *Science and Technology*. Tarzana, California: American Astronautical Society, 1972.
- Whipple, F. L., and S. E. Hamid. "A Search for Comet Encke in Ancient Chinese Records—A Progress Report." Pages 152–154, in G. A. Chebotarev, E. I. Kazimirschak-Polonskaya, and B. G. Marsden, editors, *The Motion, Evolution of Orbits, and Origin of Comets, Proceedings of the International Astronomical Union Symposium No. 45*. Dordrecht-Holland: D. Reidel Publishing Company, 1972.
- Wood, A. T., Jr., and R. W. Noyes. "Solar Flares in the Extreme Ultraviolet: II. Comparisons with Other Observations." *Solar Physics*, volume 24 (1972), pages 180–196.
- Wood, A. T., Jr., R. W. Noyes, A. K. Dupree, M. C. E. Huber, W. H. Parkinson, E. M. Reeves, and G. L. Withbroe. "Solar Flares in the Extreme Ultraviolet: I. The Observations." *Solar Physics*, volume 24 (1972), pages 169–179.
- Wood, A. T., Jr., R. W. Noyes, and E. M. Reeves. "EUV Observations of Solar Flares." Pages 117–125, in P. McIntosh and M. Dryer, editors, *Solar Activity Observations and Predictions*. Cambridge, Massachusetts: The MIT Press, 1972.
- Wood, J. A. "Ancient History Now Emerges from Lunar Rocks." *Smithsonian*, volume 3 (1972), pages 37–42.
- . "Early History of the Moon." *Chemistry*, volume 45 (1972), pages 23–26.
- . "Fragments of Terra Rock in the Apollo 12 Soil Samples and a Structure Model of the Moon." *Icarus*, volume 16 (1972), pages 462–501.
- . "Asymmetry of the Moon." Pages 790–792, in J. Chamberlain and C. Watkins, editors, *Lunar Science IV*. Houston, Texas: Lunar Science Institute, 1973.
- Wright, F. W. "Errors of Some Sextant Sights with a Bubble, from the Queen Elizabeth 2." *Journal of Navigation*, volume 26 (1973), pages 236–238.
- Zeilik, M., and A. Dalgarno. "Ultraviolet Argon Dayglow Lines in the Atmosphere of Mercury." *Planetary and Space Science*, volume 21 (1973), pages 383–389.

*Smithsonian Astrophysical Observatory Special Reports*

344. G. E. O. Giacaglia and C. A. Lundquist. "Sampling Functions for Geophysics." 3 July 1972.
346. J. R. Cherniack. "Computation of Hansen Coefficients." 27 July 1972.
347. P. A. Mohr. "ERTS-1 Imagery of Eastern Africa: A First Look at the Geological Structure of Selected Areas." 20 December 1972.
348. L. G. Jacchia and J. W. Slowey. "A Supplemental Catalog of Atmospheric Densities from Satellite-Drag Analysis." 28 December 1972.

349. Y. Kozai. "A New Method to Compute Lunisolar Perturbations in Satellite Motions." 1 February 1973.
350. R. J. Davis, W. A. Deutschman, and K. L. Haramundanis. "Telescope Catalog of Ultraviolet Stellar Observations. Magnetic Tape Version." 3 May 1973.
351. R. L. Kurucz. "Semiempirical Calculation of gf Values: Sc II  $(3d+4s)^2-(3d+4s)4p$ , A Detailed Example." 30 May 1973.

### Smithsonian Tropical Research Institute

- Abele, Lawrence G. "Comparative Habitat Diversity and Faunal Relationships Between the Pacific and Caribbean Panamanian Decapod Crustacea: A Preliminary Report, with Some Remarks on the Crustacean Fauna of Panama." *Bulletin of the Biological Society of Washington*, volume 2 (1972), pages 125-138.
- . "Introduction of Two Freshwater Decapod Crustaceans (Hymenomatidae and Atyidae) into Central and North America. *Crustaceana*, volume 23 (1972), pages 209-218.
- . "A Reevaluation of the *Neopanope texana-sayi* Complex, with Notes on *N. packardii* (Crustacea: Decapoda: Xanthidae) in Northwestern Atlantic." *Chesapeake Science*, volume 13 (1972), pages 263-271.
- Dodson, Calaway H., and Robert L. Dressler. "Two Undescribed Genera in the Orchidaceae—Oncidiinae." *Phytologia*, volume 24 (1972), pages 285-292.
- Dressler, Robert L. "Una *Kefersteinia* Nueva del Ecuador." *Qrquideología*, volume 7 (1972), pages 135-137.
- . "Terrestrial Plants of Panama." *Bulletin of the Biological Society of Washington*, volume 2 (1972), pages 179-186.
- Earle, Sylvia A. and Joyce Redemske Young. "*Siphonoclathrus*, A New Genus of Chlorophyta (Siphonales: Codiceae) from Panamá." *Occasional Papers of the Farlow Herbarium of Cryptogamic Botany*, volume 3 (1972), pages 1-4.
- Glynn, Peter W. "*Acanthaster*: Effect on Coral Reef Growth in Panamá." *Science*, volume 180 (1973), pages 504-506.
- . "Aspects of the Ecology of Coral Reefs in the Western Atlantic Region." Pages 271-324, in D. A. Jones and R. Endean, editors, *Biology and geology of coral reefs*. New York: Academic Press, 1972.
- . "Isopoda of the Suez Canal." Pages 3-4, in F. D. Por, editor, *Contributions to the Knowledge of Suez Canal Migration*. Israel Journal of Zoology, volume 21 (1973).
- . "Observations on the ecology of the Caribbean and Pacific coasts of Panamá." *Bulletin of the Biological Society of Washington*, volume 2 (1972), pages 13-30.
- Glynn, Peter W., Robert H. Stewart, and John E. McCosker. "Pacific Coral Reefs of Panamá: Structure, Distribution and Predators." *Geologische Rundschau*, volume 61 (1972), pages 483-519.
- Graham, Jeffrey B. and Lawrence G. Abele. "Panamá Bay Fish Kill and Crab Swarming." *Smithsonian Institution Center for Short Lived Phenomena, Event Information Report*, #54-73, 1618-1619, 25 April 1973.
- Leigh, Egbert G. "The Golden Section and Spiral Leaf-Arrangement." Pages 163-176, in E. S. Deevey, editor, *Growth by Intussuspection: Ecological Essays in Honor of G. Evelyn Hutchinson*. New Haven: Connecticut Academy of Arts and Sciences, 1972.

- Linares, Olga F. "Discussions." Pages 14-15; 65-66, in Elizabeth P. Benson, editor, *The Cult of the Feline: A Conference on Pre-Colombian Iconography*. Dumbarton Oaks, 1972.
- . "Técincas en la Paleo-Arqueología del Oeste Panameño: el Proyecto NSF en Bocas del Toro y Chiriquí." Pages 257-289, in *Actas del II Simposium Nacional de Antropología, Arqueología y Etnohistoria de Panamá, Abril 1971*. Panamá: Centro de Investigaciones Antropológicas, 1972.
- Moynihan, Martin H. "Species Proportions—A Reply." *American Naturalist*, volume 107 (1973), pages 155-156.
- Porter, James W. "Ecology and Species Diversity of Coral Reefs on Opposite Sides of the Isthmus of Panama." *Bulletin of the Biological Society of Washington*, volume 2 (1972), pages 89-116.
- . "Patterns of Species Diversity in Caribbean Reef Corals." *Ecology*, volume 53 (1972), pages 745-748.
- . "Predation by *Acanthaster* and Its Effect on Coral Species Diversity." *American Naturalist*, volume 106 (1972), pages 487-492.
- Rand, A. Stanley. "The Temperatures of Iguana Nests and Their Relation to Incubation Optima and to Nesting Sites and Season." *Herpetologica*, volume 28 (1972), pages 252-253.
- Ranere, Anthony J. "Ocupación Pre-Cerámica en las Tierras Altas de Chiriquí," traducido por Reina T. de Araúz. Pages 199-207, in *Actas del II Simposio Nacional de Antropología, Arqueología y Etnohistoria de Panamá*. Panamá: Centro de Investigaciones Antropológicas, 1972.
- Reimer, Amada Alvarez. "Feeding Behavior in the Sea Anemone *Calliactis polypus* (Forskål, 1775)." *Comparative Biochemistry and Physiology*, volume 44A (1973), pages 1289-1301.
- Robinson, Michael H. "The Defensive Behaviour of the Javanese Stick Insect *Orxines macklotti* De Haan. In Barbosa and Peters, editors, *Readings of Entomology*. Washington: Suanders W.B., Company, 1972.
- . "Insect Anti-Predator Adaptations and the Behavior of Predatory Primates." *Actas del IV Congreso Latinoamericano de Zoología II* (1973), pages 811-836.
- Robinson, Michael H., and Barbara Robinson. "The Structure, Possible Function and Origin of the Remarkable Ladder-Web Built by a New Guinea Orb-Web Spider (Araneae: Araneidae)." *Journal of Natural History*, volume 6 (1972), pages 687-694.
- . "Techniques for the Observation of Spider Behaviour." *Bulletin of the British Arachnological Society*, volume 4 (1972), pages 58-59.
- Rosenblatt, Richard H., John E. McCosker, and Ira Rubinoff. "Indo-West Pacific Fishes from the Gulf of Chiriquí, Panamá." *Contributions in Science, Natural History Museum, Los Angeles County*, number 234 (1972), pages 1-18.
- Rubinoff, Ira. "Biological Assessment. The Panamic Biota." *Science*, volume 179 (1973), page 791.
- Smith, Neal G. "A Game of Brood Parasitism: Cowbirds Versus Oropendolas." *Fauna*, volume 4 (1973)
- . "Reproductive Behavior." *Encyclopaedia Britannica*, 1972.
- . "Spectacular Buteo Migration over Panamá." *American Birds*, volume 27 (1973), page 3.
- Wolda, Hindrik. "Changes in Shell Size in Some Experimental Populations of the Landsnail *Cepaea nemoralis* (L.)." *Israel Journal of Malacology*, volume 3 (1972), pages 63-71.
- . "Ecology of Some Experimental Populations of the Landsnail *Cepaea*



*memoralis* (L.) I. Adult Numbers and Adult Mortality." *Netherlands Journal of Zoology*, volume 22 (1972), pages 428-455.

### Radiation Biology Laboratory

- Brooks, C., and E. Gantt. "Comparison of Phycoerythrins (542, 566 nm) from Cryptophycean Algae." *Archiv fuer Mikrobiologie*, volume 88 (1973), pages 193-204.
- Correll, David L. "The Measurement of Phosphorus Metabolism in Natural Populations of Microorganisms." In *Bioassay Techniques and Environmental Chemistry*, Chapter 23 (1973), pages 425-431.
- Gantt, E., and C. A. Lipschultz. "Energy Transfer in Phycobilisomes from Phycoerythrin to Allophycocyanin." *Biochimica et Biophysica Acta*, volume 292 (1973), pages 858-861.
- Harding, R. W., and R. P. Wagner. "Immunological Studies with Pyruvate Dehydrogenase Complex Isolated from *N. crassa*." *Neurospora Newsletter*, volume 19 (1972), page 14.
- Honeycutt, Richard C., and Maurice Margulies. "Control of Ribosome Level, Gamete Formation, and Amino Acid Uptake in Wild Type Arg-1 *Chlamydomonas reinhardtii*." *Biochimica et Biophysica Acta*, volume 281 (1972), pages 399-405.
- Huang, Ter-Chien, Daniel J. Stanley, and Robert Stuckenrath. "Sedimentological Evidence for Current Reversal at the Strait of Gibraltar." *Marine Technology Journal*, volume 6 (1972), pages 25-33.
- Mitrakos, K., and W. Shropshire, Jr. "Phytochrome," *Proceedings of the Nato Summer Institute on Phytochrome*, Eretria, Greece, September 1971. Academic Press, 1972, 631 pages.
- Shropshire, W., Jr. "Phytochrome, A Photochromic Sensor." Chapter 2, in *Photophysiology*, edited by A. C. Giese, Academic Press, volume 7, 1972, pages 33-72.
- . "Phototropism." In *Book of Abstracts, Symposia and Contributed Papers*. International Congress on Photobiology 1972, page 24.
- . "Action Spectroscopy." Chapter 8, in *Phytochrome*, edited by K. Mitrakos and W. Shropshire, Jr. Academic Press, 1972, pages 161-181.
- Stuckenrath, Robert, and James E. Mielke. "Smithsonian Institution Radiocarbon Measurements VII." *Radiocarbon*, volume 14, 1972, pages 401-412.
- . "Smithsonian Institution Radiocarbon Measurements VIII." *Radiocarbon*, volume 15, 1973, pages 388-424.

### National Zoological Park

- Bush, Mitchell, and C. W. Gray. "Sterilization of Projectile Syringes." *Journal of the American Veterinary Medical Association*, volume 161, number 6 (1972), pages 672-673.
- Bush, Mitchell, R. Lemkin, and J.A. Moore. "Prolapsed Uterus in a Pigmy Hippopotamus." *Journal of the American Veterinary Medical Association*, volume 161, number 6 (1972), page 651.
- Bush, Mitchell, D. R. Pieroni, D. G. Goodman, R.I. White, V. Thomas, and A.E. James. "Tetralogy of Fallot in a Cat." *Journal of the American Veterinary Medical Association*, volume 161, number 12 (1972), pages 1679-1686.

- Collins, L. R. "America's Latest Giant Pandas." *Proceedings of the 48th Annual AAZPA Conference* (1972), pages 54-61.
- . "Hsing-Hsing and Ling-Ling from Peking." *Smithsonian*, volume 3, number 3 (1973), pages 26-33.
- Collins, L. R., and J. K. Page. "Hsing-Hsing and Ling-Ling." *The World of the Giant Panda* by R. Perry (Afterword), 1972, pages 117-127.
- Eisenberg, J. F., and D.G. Kleiman. "Olfactory Communication in Mammals." *Annual Review of Ecology and Systematics*, volume 3 (1972).
- Eisenberg, J.F., and E. Maliniak. "Breeding and Captive Maintenance of the Lesser Bamboo Rat, *Cannomys badius*." *International Zoo Yearbook*, volume 13 (1973), pages 204-207.
- Jainudeen, M.R., G.M. McKay, and J.F. Eisenberg. "Observations on Musth in the Domesticated Asiatic Elephant (*Elephas maximus*)." *Mammalia*, volume 36, number 2 (1972), pages 247-261.
- Kleiman, D.G. "Social Behavior of the Maned Wolf (*Chrysocyon brachyurus*) and Bush Dog (*Speothos venaticus*): A Study in Contrast." *Journal of Mammalogy*, volume 53, number 4 (1972), pages 791-806.
- . "Maternal Behaviour of the Green Acouchi (*Myoprocta pratti* Pocock), A South American Caviomorph Rodent." *Behaviour*, volume 43 (1972), pages 48-84.
- Kleiman, D.G., and L.R. Collins. "Preliminary Observations on Scent-Marking, Social Behavior, and Play in the Juvenile Giant Panda, *Ailuropoda melanoleuca*." *American Zoologist*, volume 12, number 4 (1972), page 15.
- McKay, G. M. "The Ecology and Behavior of the Asiatic Elephant in Southeastern Ceylon." (*Smithsonian Contributions to Zoology*,) number 125 Washington, D.C.: Smithsonian Institution Press, 1973.
- Montgomery, G. G., and M. Sunquist. "Respiration Rate of Free-Living Three-toed Sloth (*Bradypus infuscatus*)." *Mammalia*, volume 36 (1973), pages 530-532.
- Muckenhirn, N.A., and J.F. Eisenberg. "Home Ranges and Predation in the Ceylon Leopard (*Panthera pardus fusca*)." In *The World's Cats*, R. L. Eaton, editor. World Wildlife Safari, Winston, Oregon, and ICS, Athens, Georgia (1973), pages 142-175.
- Olds, Tony J., and L. R. Collins. "Breeding Matschie's tree kangaroo (*Dendrolagus matschiei*) in Captivity." *International Zoo Yearbook*, volume 13 (1973), pages 123-125.
- Perry, John. "In Danger—Golden Lion Marmosets." *Smithsonian*, volume 3, number 9 (December 1972), pages 49-53.
- Perry, John, and Dana Lee Horsemen. "Captive Breeding of Orangutans." *Zoologica*, volume 57, issue 2 (Summer 1972), pages 105-108.
- Perry, John, Donald Bridgwater, and Dana Lee Horseman. "Captive Propagation: A Progress Report." *Zoologica*, volume 57, issue 3 (Fall 1972), pages 109-117.
- Reed, T. H. "What's Black and White and Loved All Over?" *National Geographic*, volume 142, number 6 (December 1972), pages 802-815.
- Rudran, R. "The Reproductive Cycles of Two Species of Purple-Faced Langurs (*Presbytis senex*) with Relation to Environmental Factors." *Folia Primatologica*, volume (1973), pages 41-60.
- Sagartz, J.W., F.M. Garner, and R.M. Sauer. "Multiple Neoplasia in a Captive Jungle Cat (*Felis chaus*)—Thyroid Adenocarcinoma, Gastric Adenocarcinoma, Renal Adenoma, and Sertoli Cell Tumor." *Journal of Wildlife Diseases*, volume 5, number 8 (October 1972), pages 375-380.
- Strecker, Ernest-Peter, Mitchell Bush, and A.E. James. "Cerebrospinal Fluid

- Imaging as a Method to Evaluate Communicating Hydrocephalus in Dogs." *Journal of the American Veterinary Radiology Society*, volume 34, number 1 (1973).
- Xanten, William A., Jr., L. R. Collins, and M. M. Connery. "Breeding and Birth of a Bongo (*Boocercus eurycerus*) at the National Zoological Park, Washington." *International Zoo Yearbook*, volume 13 (1973), pages 152–153.
- Zook, B.C., R.M. Sauer, and F.M. Garner. "Lead Poisoning in Captive Wild Animals." *Journal of Wildlife Diseases*, volume 5, number 8 (July 1972).
- . "Acute Amaurotic Epilepsy Caused by Lead Poisoning in Nonhuman Primates." *Journal of American Veterinary Medical Association*, volume 161, number 6 (15 September 1972), pages 683–686.

## Office of Environmental Sciences

### ECOLOGY PROGRAM

- Jenkins, D.W. "The Toxic Metals in Your Future—And Your Past." *Smithsonian*, volume 3, number 1 (1972), pages 62–69.
- . "Bilharzia Defeats Development." (Ecological Problems in Developing Countries) *Läkartidningen, Journal of Swedish Medical Association*, volume 69, number 23 (1972), pages 2822–2827.
- . "Development of a Continuing Program to Provide Indicators and Indices of Wildlife and the Natural Environment." Final Report to the Council on Environmental Quality, 15 April 1972, pages 1–163.
- . "An Ecological Look at Our Earth," Lecture. Ohio State University. 25 March 1972.
- Jenkins, D.W., and S.L. Keiley. "Natural Areas of the Eastern Seaboard and Their Management." Lecture. Southern Illinois University. 5 October 1972.
- Keiley, S. L. "A Conservation and Protection Plan for the Coast of Maine." Report to the Coastal Conservation Conference at Campobello Island. 13 November 1972.
- . "The Role of the Smithsonian Center for Natural Areas." Address at annual meeting National Association of State Outdoor Recreation Liaison Officers. 11 September 1972.
- Jolly, W.C. "Environmental Studies at United States Colleges and Universities." *Biological Conservation*, volume 4, number 2 (1972) page 152.
- . "Institute for Environmental Quality, University of Michigan." *Environmental Education: Academies Response*. Commission on Undergraduate Education in Biological Sciences. Publication 35 (1972) pages 36–39.
- Poole, R. K. "Smithsonian Institution—Peace Corps Environmental Program." Address and paper. The Second World Conference on National Parks, Grand Teton, September 1972.
- Sherburne, J.A., and R.K. Poole. "Wildlifers sought by the Smithsonian Institution—Peace Corps Environmental Program." *Wildlife Society Bulletin*, volume 1, number 1 (1973), pages 48–49.
- Sherburne, J.A. "The Function of the Smithsonian—Peace Corps Environmental Program and Opportunities for Entomologists." Lecture, Entomological Society of America Annual Meeting, Montreal, November 1973.
- . "Effects of Seasonal Changes in the Abundance and Chemistry of the Fleshy Fruits of Northeastern Woody Shrubs on Patterns of Exploitation by Frugivorous Birds." Ph.D. Thesis, Cornell University, May 1972.



## OCEANOGRAPHY AND LIMNOLOGY

- Higgins, R. P. "Kinorhyncha." In A. C. Giese and J. S. Pearse, editors, *Reproduction of Marine Invertebrates*, New York: Academic Press, 1973.
- . "Priapulida of Chesapeake Bay/Tardigrada of Chesapeake Bay/Kinorhyncha of Chesapeake Bay." *Chesapeake Science*, volume 13 (Supplement, 1972), pages S102-S105.
- Kerby, Catherine J., co-editor, "Biota of the Chesapeake Bay." *Chesapeake Science*, volume 13 (Supplement, 1972), entire issue.

## SMITHSONIAN OCEANOGRAPHIC SORTING CENTER

- Houbrick, Joseph. "Application to Preserve the Name *Cerithium* by Designating *Cerithium adansonii* (Bruguiere, 1792) as the Type Species." *Bulletin of Zoological Nomenclature*, (1973, in press).
- . "Growth Studies on the Genus *Cerithium* (Gastropoda: Prosobranchia) with Notes on Ecology and Microhabitats." *Nautilus*, (1973, in press).
- . "Studies on the Reproductive Biology of the Genus *Cerithium* (Gastropoda: Prosobranchia) in the Western Atlantic." *Bulletin of Marine Science*, (1973, in press).
- . "Investigations of Marine Shallow Water Ecosystems (Molluscs)." IMSWE Progress Report, FY 1973.
- Knapp, Leslie W. "*Platycephalus beauforti*, a New Species of Flathead (Pisces: Platycephalidae) from the Western Pacific." *Proceedings of the Biological Society of Washington*, (1973, in press).
- . "Review of *Pacific Marine Fishes*, Book I, by Fujio Yasuda and Yoshio Hiyama." *Transactions of the American Fisheries Society*, (1973, in press).
- Landrum, B. J. "Antarctic Information Services at the Smithsonian Oceanographic Sorting Center." *Antarctic Journal of the U.S.*, volume 7, number 5 (1972), pages 212-213.
- Simmons, Keith L., and B. J. Landrum. "Bottom Photographs of Antarctic Benthos." *Antarctic Journal of the U.S.*, volume 8, number 2 (1973), pages 41-43 and front cover.
- . "Sea Floor Photographs from the USNS ELTANIN: The Collection and Data Processing Techniques." *Antarctic Journal of the U.S.*, volume 8, number 3 (1973, in press).

## CENTER FOR SHORT-LIVED PHENOMENA

- "Catalogue of Publications Available Through the Center for Short-Lived Phenomena." November 1972.
- "CSLP 1972, Annual Report and Review of Events." May 1972.
- Citron, Robert. "A Plan to Establish an International Environmental Educational Program as Part of the UNESCO Man and the Biosphere Program." October 1972.
- . "A Plan to Establish an International Alert Network as Part of the United Nations Earthwatch Program." 2 October 1972.
- Citron, Robert and John Whitman. "A Plan to Establish an International Environmental Alert Network and an International Environmental Education Program as Part of the United Nations Earthwatch Program." September 1972.

## Smithsonian Science Information Exchange, Inc.

- Hersey, D. F. "Keeping Pace with Active Research on Experimental Medicine and Surgery in Primates." *CD Medical Primatology*, volume 1 (1973), in press.
- Foster, W. R. "Reference Books and Computerized Information Services: Partners in Librarianship." *Bulletin Medical Library Association*, volume 60, number 3 (July 1972), pages 439-444.
- Riva, J. P. "Computerized Indexing and Retrieval of Information Regarding On-going Geological Research." *Proceedings of the 24th International Geological Congress*, Montreal, Canada, section 16 (August 1972), pages 213-217.
- . "Toward the Development of a Geosciences Information System—Research in Progress." *Geosciences Information Society Proceedings*, volume 2 (September 1972), pages 69-74.
- Snyderman, M., and B. L. Hunt. "Nineteen Ideas for Management of Small Computer Systems." *Management and Computer Systems*, 2nd edition (February 1973), pages 262-270.

## The National Museum of History and Technology

### OFFICE OF DIRECTOR

- Bedini, Silvio A. "Artists and Artisans in Wood." Lecture. America's Wooden Age. The Thirty-first Conference in Early American History. Sponsored by Sleepy Hollow Restorations and the Institute of Early American History and Culture. Tarrytown, New York. 27 April 1973.
- . "Benjamin Banneker and Baltimore County." Lecture. Maryland Historical Society, Baltimore, Maryland. 15 October 1972.
- Boorstin, Daniel J., editor. *American Civilization*. 352 pages. London: Thames and Hudson; New York: McGraw-Hill Book Company, 1972.
- . *The Americans: The Democratic Experience*. 717 pages. New York: Random House, 1973.
- . "The U. S. Capitol Building." *Aventure International*, volume 1, number 1, inaugural issue [December 1972], page 10.
- . "Too Much Too Soon?" *T.V. Guide*, volume 20, number 51, issue 529 (16-22 December 1972), pages 14-15.
- . "Getting There First." *Reader's Digest* (December 1972), pages 91-94.
- . "A. Montgomery Ward's Mail-Order Business." *Chicago History* (Spring-Summer 1973), pages 142-152.
- . "How We Democratized the American Diet from Salt Fish to Frozen Berries." *Smithsonian* (June 1973), pages 26-34.
- . "Getting There Is All the Fun." *The Listener*, volume 89, number 2301 (3 May 1973), pages 578-579.
- . "Technology and Democracy." Chapter in *Our Secular Cathedrals: Change and Continuity in the University*. The Franklin Lectures in the Sciences and Humanities, third series. The University of Alabama Press for Auburn University (1973), pages 99-123.
- . "Club of Rome." Broadcast discussion. Nationale Publiciteits Onder-neming bv, The Hague, 3 November 1972.
- . "Getting There First." MGM Monogram Series TV Documentary (December 1972).

- . "A Country of the Future: Past and Present." Lecture. Texas Christian University, 8 December 1972.
- . "Too Much Democracy?" Broadcast. British Broadcasting Corporation, London, 22 March 1973.
- . "The Smithsonian Institution." Lecture. The Instituto Della Enciclopedia Italiana, Rome, 22 March 1973.
- . "America and the Image of Europe." Lecture. Royal University of Malta, Valletta, Malta, 27 March 1973.
- . "Education in America." Lecture. American Center, Valletta, Malta, 27 March 1973.
- . "American Life and the Exploring Spirit." Lecture. Hellenic American Union, Athens, 4 April 1973.
- . "Man, His Machines and Society." Symposium Lecture. American Center, Nicosia, Cyprus, 10 April 1973.
- . "The American Standard of Living." Lecture. Nicosia, Cyprus, 12 April 1973.
- . "Advertising and American Civilization." Lecture in series *Advertising and Society*. Graduate School of Business, University of Chicago, 24 May 1973.
- . "Vietnam: a Discussion." Broadcast. British Broadcasting Corporation, London, 6 June 1973.
- . "A Letter from Washington." Broadcast. British Broadcasting Company, London, 11 June 1973.

#### DEPARTMENT OF APPLIED ARTS

- Bruns, Franklin R., Jr. "The Post Office's Philatelic Truck—An Early Project for Philatelic Education." *Thirty-eighth American Philatelic Congress Book*, 1972, pages 49–67.
- . "Visiting the Smithsonian," *Scott Monthly Journal*: "The National Parks," volume 53, number 5, pages 18–19, 43; "Franklin D. Roosevelt and Stamps of His Era," volume 53, number 7, pages 12–13; "The 1939–41 Philatelic Truck and Its Souvenir Sheet," volume 53, number 8, pages 6–7, 9; "New Era for Philately Launched by 1923 Stamp Illustration Law," volume 54, number 2, pages 14–15, 18.
- Clain-Stefanelli, Elvira. "The New Coin Hall—New Horizons in Numismatics," 15 November 1972. Lecture. Montgomery County Coin Club.
- . "Counterfeiting in History," lecture sponsored by Radio Smithsonian. 22 September 1972.
- Clain-Stefanelli, Elvira and Vladimir. *The History of Money and Medals*, Washington, 1972. 20 pages, illustrated.
- Dirks, Katherine. "How to Care for Your Antique Textiles," *Handweaver & Craftsman*. January/February 1973, pages 40–41.
- Haberstich, David. "The History of Photography at the Smithsonian," *Graphic Antiquarian*, volume 3, number 1 (July 1972), pages 4–8.
- . "Photography and the Plastic Arts," *Leonardo*, volume 6, number 2 (1973), pages 113–119.
- . "Bibliography in Photography," Lecture. The University of Maryland (Baltimore County campus), 20 September 1972.
- . "Photography: Art and Artifact," Lecture. Northern Virginia Fine Arts Association, 20 September 1972.
- Harris, Elizabeth M. "Miscellaneous 19th Century Map Printing Processes." Lecture. The Newberry Library, Chicago, November 1972.



- Marzio, Peter C., Milton Kaplan. "Prints as Historical Documents," *Antiques*, volume 102, number 4 (October 1972), pages 669-674.
- . "Prints as Social Documents." Lecture. Graduate Seminar. Smithsonian American Studies Program. Fall 1972.
- . "Art, Technology, and Satire; The Legacy of Rube Goldberg." *Leonardo*, volume 5 (Fall 1972), pages 315-324.
- . "Communications an Impetus for Change." Lecture. Communications course offered by Smithsonian Associates, Spring 1973.
- Marzio, Peter C. "An Introduction to the Henry R. Luce Hall of News Reporting." Lecture. Broadcast Educators Association. National Museum of History and Technology, Spring 1973.
- . *The Men and Machines of American Journalism*, Washington, D. C., Smithsonian Institution, 1973.
- . "The History of News Reporting." Hall Guide, Washington, D. C., Smithsonian Institution, 1973.
- . "The American Drawing Books 1800-1860." Lecture. Free Library of Philadelphia, Fourth Annual Print Conference, Spring 1973.
- Norby, Reidar. "The Søllested Strip," *Scandinavian Scribe*, volume 8, number 7 (September 1972), pages 100-101.
- . "Nordic Lands," *Linn's Stamp News*: "Scandinavia Has Tradition of Reliable Postal Service," (27 November 1972), page 16; "Stamps Retell Mythology, History of Scandinavia" (25 December 1972), page 48.
- . "Don't Destroy Those Space Fillers," *Scandinavian Scribe*, volume 9, number 1 (January 1973), pages 4-5, and reprinted in *Western Stamp Collector*, number 4020 (10 March 1973), pages 7-11.
- . "Scandinavian Varieties," *Scandinavian Scribe*, volume 8 (1972) page 110 and volume 9 (1973), pages 31, 45.
- . "Trimmed Stamps Not Always Fakes," *Scandinavian Scribe*, volume 9, number 2 (February 1973), pages 23-24.
- . "FIP Representation Representative?" *Scandinavian Scribe*, volume 9, number 3 (March 1973), pages 39-41.
- . "Sweden's Motorized Mail Coaches 1923-73," *Scandinavian Scribe*, volume 9, numbers 4 and 5 (April and May 1973), pages 55-65 and 71-79.
- Scheele, Carl H., Reidar Norby, Franklin R. Bruns, Jr., Ellen Roney, Craig J. Turner, and Frank J. Berek. *Hall of Stamps and the Mails*. 24 pages, 38 illustrations. Omaha, Neb.; Scott Publishing Co., 1972.
- . "Technology and the U. S. Postal Service, 1875-1910," Lecture. Graduate Seminar. Smithsonian American Studies Program. Fall 1972.
- Turner, Craig J. "The Early United States Bank Note Companies and Their Postage Stamp Issues, 1847-1893." *The Thirty-Eighth American Philatelic Congress Book* (27-29 October 1972), pages 11-47 (16 illustrations and 6 tables).
- Turner, Craig J. "National Postage Stamp Collection Has 12 Million Items Available for Display." *Linn's Stamp News*, volume XLVI, number 9, (February 1973), pages 2 and 27.
- . "The Postmaster General's Postage Stamp—Part I—1860 Ninety Cent Blue." *The S.P.A. Journal*, volume 35, number 6, (February 1973), pages 339-342 (2 illustrations).
- . "The Postmaster General's Postage Stamp—Part II—1861 Ninety Cent Blue." *The S.P.A. Journal*, volume 35, number 8 (March 1973), pages 413-418 (4 illustrations).
- . "The Postmaster General's Postage Stamp—Part III—1869 Ninety

Cent Lincoln." *The S.P.A. Journal*, volume 35, number 8 (April 1973), pages 487-493 (4 illustrations).

———. "The Postmaster General's Postage Stamp—Part IV—1870 Ninety Cent Perry." *The S.P.A. Journal*, volume 35, number 9 (May 1973), pages 539-541 (2 illustrations).

———. "The Postmaster General's Postage Stamp—Part V—1873-1888 Ninety Cent Perry." *The S.P.A. Journal*, volume 35, number 10 (June 1973), pages 601-604 (2 illustrations).

#### DEPARTMENT OF CULTURAL HISTORY

Ahlborn, Richard E. "European Dress in Texas, 1830: As Rendered by Lino Sanchez y Tapia." *American Scene*, volume XIII, number 4. Thomas Gilcrease Institute of American History and Art: Tulsa, 1972.

———. "The Material Culture of Latin America." Lecture. Foreign Service Institute, Washington, D. C., September 1972.

———. "The Transmission of Culture: Spain to America." Lecture. American University, Washington, D. C., December 1972.

———. "Woodwork in Hispanic New Mexico." Lecture. NMHT Seminar, Smithsonian, Washington, D. C., January 1973.

———. "Latin American Art Since Independence." Lecture. George Washington University, Washington, D. C., March 1973.

———. "Hispanic Collections at the Smithsonian." Lecture. NMHT Saturday Series, Smithsonian, Washington, D. C., March 1973.

———. "Hispanic Building Practices in the Southwest." Lecture. Columbia University (NYC) Graduate Seminar, Smithsonian, Washington, D. C., March 1973.

———. "Hispanic Material Culture in the Southwest." Lecture. American Studies Graduate Seminar, Smithsonian, Washington, D. C., April 1973.

———. "Hispanic Folk Traditions in New Mexico." Lecture. University of Delaware Graduate Seminar, Smithsonian, Washington, D. C., May 1973.

———. "New Mexico in 1775." Lecture. Conversations with Curators Series, Smithsonian, Washington, D. C., May 1973.

Fesperman, John T. Recording. *Messe pour les Paroisses* (Francois Couperin). Cambridge Records, CRS 2504, May 1973.

———. *Ten Voluntaries for the Organ or Harpsichord by William Boyce (1710-1779)*, with an introduction and notes by John Fesperman, Boston: E. C. Schirmer, 1973.

———. "Renaissance in American Organ Design, 1930-1960." Paper read at the American Musical Instruments Society meetings, Boston, April 1973.

Fesperman, John T., with David Hinshaw. "New Light on North America's Oldest Instruments: Mexico." *Organ Yearbook*, volume III, pages 52-63, Amsterdam: Frits Knuf, 1972 (appeared in 1973).

Golovin, Anne Castrodale. "Bridgeport's Gothic Ornament: The Harral-Wheeler House." *Smithsonian Studies in History and Technology*, number 18, 1972.

Hoover, Cynthia A. "Music Machines at the Smithsonian," *Journal of the Association for Recorded Sound Collections*, volume IV, numbers 1/2/3, pages 29-32.

———. Record notes for *Songs by Stephen Foster*. Nonesuch Records, H 71268.

———. Collaborated on exhibition "Early Music in Massachusetts," Museum of Fine Arts, 16 May-2 September 1973.



- . "Historical Music in Museums." Member of panel at conferences on American music at Old Sturbridge Village, 5–6 May 1973.
- . "Musical Instruments in America." Chairman of session at national meetings of the American Musicological Society, November 1972.
- . At national meetings of the American Musical Instruments Society, moderator of panel of American instrument builders and program chairman of the meetings. Boston, April 1973.
- Kidwell, Claudia B. "Bathing Dress Was Not for Swimming." Illustrated lecture. Daughters of the American Revolution, Washington, D. C., 18 November 1972.
- . "Quest for Clothing by 18th Century Americans." Illustrated lecture. The Smithsonian Associate's "Conversations with Curators; Early Life in Our Country." Smithsonian, Washington, D. C., 21 May 1973.
- Odell, J. Scott, with Sheridan Germann, research collaborator. Supervised full-sized drawings of five keyboard instruments in the collection which are available as research documents to builders and scholars (available in paper print and mylar print).
- Roth, Rodris. "Aspects of Material Culture: Cultural History." Lecture. American Studies Graduate Seminar, Smithsonian, Washington, D. C., 12 October 1972.
- Serio, Anne Marie. "Political Cartoons in the 1848 Election Campaign." *Smithsonian Studies in History and Technology*, number 14, 1972.
- Sheldon, Robert. Flutist and keyed bugler for *Songs by Stephen Foster*. Nonesuch Records, H 71268.
- . Lecture and demonstration with Dr. Robert Eliason, Curator of Musical Instruments, Henry Ford Museum, presented at *First International Tuba Symposium Workshop*, Indiana University School of Music, 22 May 1973.
- Watkins, C. Malcolm. *James Johnston's White House in Half Moon Bay: An Example of Early Anglo-American Reminiscent Architecture in California*. Illustrated. 28 pages. Half Moon Bay, California: The Johnston House Foundation, Inc., 1972.
- . "Historical Archaeology: Its Significance for the History Museum Curator." Lecture. The Cooperstown Graduate Program, New York State Historical Association, Cooperstown, New York, 4 May 1973.
- . "Expert Knowledge: An Unfashionable Ingredient." Panel paper, Session on Museum Training, Western Regional Conference, American Association of Museums, Berkeley, California, 20 October 1972.
- Weaver, James M. Lecture. "Historical Keyboard Instruments," at *Baroque Music at Aston Magna*, June 1973.
- . Faculty of *Baroque Performance Institute*, The Conservatory of Music, Oberlin College, 16 July–6 August 1972.

## DEPARTMENT OF INDUSTRIES

- Berkebile, Donald H. "Wood as a Material of Street and Road Construction." Lecture, *Wood in American Culture*, National Museum of History and Technology, Washington, D. C., December 1972.
- Chapelle, Howard I. "The Competition between Wood and Iron as a Shipbuilding Material in the Last Half of the 19th Century." Lecture, *Wood in American Culture*, National Museum of History and Technology, Washington, D. C., December 1972.
- Hoffman, John N. "Girard Estate Coal Lands in Pennsylvania, 1801–1884." *Smithsonian Studies in History and Technology*, number 15, Washington, D. C., 1972. 86 pages.



- . "Mining and Processing Metallic Ores for Strategic Stockpiling." Lecture, Army Mobilization Detachment, Washington, D. C., 7 February 1973.
- . "The Mechanization of the U. S. Coal Industry." Lecture, National Museum of History and Technology, Weekly Lecture Series, illustrated with slides and film. 28 April 1973.
- . "Our Energy Crisis." Lecture, Army Mobilization Detachment, Washington, D. C., 20 June 1973.
- . "Girard's Coal Venture." Paper, presented at the Historical Society of Schuylkill County, Annual Meeting, 18 October 1972, Pottsville, Pennsylvania.
- . "Mechanization of the Anthracite Industry 1820-1850." Paper, presented at the Sixth Regional Economic History Conference, Eleutherian Mills Historical Library, 10 May 1973. Wilmington, Delaware.
- Knowles, James A., Jr. "Blue Water Monitor." *Proceedings United States Naval Institute*, volume 99(March 1973), pages 78-89.
- Miller, J. Jefferson II. *18th Century English Porcelain*, Washington, D. C.: Smithsonian Institution Press, 1973, 93 pages.
- Schlebecker, John T. "The Agricultural Collections in the United States National Museum of History and Technology, Washington, D. C." *Museum*, volume XXIV, number 3, 1972, pages 177-180.
- . "World Agriculture and Living Historical Farms." Lecture, given at the Museum of English Rural Life, Reading, England, and at the Portsmouth City Museum, Portsmouth, England. Spring 1973.
- Sharrer, George T. "18th Century Virginia Agriculture." Lecture given at the George Washington Birthplace National Monument and Stratford Hall, Westmoreland County, Virginia. Summer 1972.
- White, John H., Jr. "Wood To Burn: the Role of the Railroad." Lecture, Wood in American Culture, National Museum of History and Technology, Washington, D. C., December 1972.
- . *Early American Locomotives*. New York: Dover Publications, 1973. XVII + 147 pages.
- . "A History of the Railroad Hand Car." *Railroad History*, 127 (October 1972), pages 65-95.
- . Editor, *Railroad History*, number 127 (October 1972), 116 pages.
- . Editor, *Railroad History*, number 128 (Spring 1973), 95 pages.

#### DEPARTMENT OF NATIONAL AND MILITARY HISTORY

- Coffee, Barbara J. "Handling and Storing of Museum Objects." Lecture. 1973 Woodlawn Conference, National Trust for Historic Preservation, Washington, D. C. February 1973.
- . "The Dresses of the First Ladies." Lecture. The Northeastern College Women's Auxiliary, Villanova, Pennsylvania. May 1973.
- . "The History of the First Ladies Hall." Lecture. Saturday Presentations. The National Museum of History and Technology, Washington, D.C. June 1973.
- Collins, Herbert R. "Value of Collectible Items." Lecture. *The Value of History*. American Society of Appraisers Regional Conference, Williamsburg, Virginia. July 1972.
- . "Campaigning American Style." Lecture. Baptist Home of the District of Columbia, Washington, D. C. August 1972.

- . "Campaigning for the Presidency." Lecture. The North Carolina Democratic Club of Washington, D. C. September 1972.
- . "The Quest for the Presidency." Lecture. The Rowfant Club, Cleveland, Ohio. October 1972.
- . "The Quest for the Presidency." Lecture. *Gulf Coast Politics in the Twentieth Century*. The Fourth Gulf Coast History and Humanities Conference. Pensacola, Florida. December 1972.
- . "Selecting and Documenting Collections." Lecture. *Material Aspects of American Culture*. American Studies Program, Smithsonian Institution, Washington, D.C. February 1973.
- Goins, Craddock R., Jr. "The Arms Collection of the Smithsonian Institution: A History of their Development and Use in Research." Lecture. Arms and Armor Society of New York, New York. April 1973.
- . "Firearms in American History." Lecture. The National Museum of History and Technology, Washington, D.C. April 1973.
- . "The Development of Breech-loading Arms in the U.S. Army following the Civil War: A Study in Economy vs. Firepower." Lecture. U.S. Air Force Research and Development, Squadron "K", Washington, D. C. September 1972.
- Hoffman, Howard P., and Philip K. Lundeberg. "The Only Surviving Man-of-War of the American Revolution: The Continental Gunboat *Philadelphia*." Lecture. Saturday Morning Lecture Series. Smithsonian Institution, Washington, D. C. 10 February 1973.
- Klapthor, Margaret B. "The French Porcelains of America's Presidents in the Early Nineteenth Century." Pages 48–51 in *Catalog of Eighteenth Annual Washington Antiques Show, 1973*. Washington, D. C.
- . "The Inauguration Story." Lecture. The National Museum of History and Technology, Washington, D. C. January 1973.
- . "The Dresses of the First Ladies of the White House." Lecture. American College Public Relations Association, Washington, D.C. March 1973.
- . "The Dresses of the First Ladies of the White House." Lecture. The Colonial Dames of America, Chapter I, Baltimore, Maryland. May 1973.
- Kloster, Donald E. "The Development of U.S. Army Uniforms from the Revolutionary War to World War II." Lecture. The National Museum of History and Technology, Washington, D. C. May 1973.
- Langley, Harold D. "The American Empire and the Navy." Lecture. Southern Historical Association Annual Meeting, Houston, Texas. 20 October 1971. [Not previously reported.]
- . "James Smithson and His Institution." Lecture. Naval War College Class, Smithsonian Institution, Washington, D.C. 8 August 1972.
- . "The Urban Navy." Lecture. American Studies Program. Smithsonian Institution, Washington, D.C. 16 November 1972.
- . "The Smithsonian Institution Buildings." Lecture. Smithsonian Associates, Smithsonian Institution, Washington, D.C. 16 December 1972.
- . "The Impact of Declassification on Diplomatic History." Panel discussion. Organization of American Historians, Chicago, Illinois. 11 April 1973.
- . "Life of the Common Seaman in the 19th and Early 20th Century." Lecture. Docents, Smithsonian Institution, Washington, D.C. 30 April 1973.
- Lundeberg, Philip K. "Information Retrieval in Museums." Lecture (illustrated). First International Congress of Maritime Museums. National Maritime Museum, Greenwich, London, England. 6 October 1972.



- . "The Museum Perspective." *Military Affairs*, volume 36 (1972), pages 107–108, 147–149; and volume 37 (1973), pages 29–31, 69–71.
- . "Time Capsule 1776: The Continental Gondola *Philadelphia*." Lecture (illustrated). The Episcopal School for Boys, Alexandria, Virginia. 25 March 1973.
- . "The Challenge of the Museum Dimension." Presidential address (illustrated). Annual Meeting of the American Military Institute, Carlisle Barracks, Pennsylvania. 7 April 1973.
- . "Time Capsule 1776: The Continental Gondola *Philadelphia*." Lecture (illustrated). St. Olaf College, Northfield, Minnesota. 10 April 1973.
- Mayo, Edith P. *The Right to Vote*. Brochure for a special election year exhibition at the National Museum of History and Technology, Washington, D.C. 1973.
- . "Some Inaugural History." *The Spirit of '76*. Official Inaugural Guidebook, 1973. Washington, D.C.: Inaugural Committee.

#### DEPARTMENT OF SCIENCE AND TECHNOLOGY

- Battison, Edwin A. "History of the Ascutney Mill Dam." Annual Report of Town of Windsor, Vt., 1973, pages
- . "Patents, Productivity and Prosperity." Lecture, Calspan Chapter, Sigma XI Engineering Society, Buffalo, N. Y., 24 May 1973. Same title (different version), Museum Lecture, Smithsonian Institution, 9 June 1973.
- Battison, Edwin A., and Patricia E. Kane. *The American Clock, 1725–1865*. New York Graphic Society, Greenwich, Conn., 1973.
- Brittain, James C. "The Revolt of the Engineers." Symposium, N. Texas Sec. of AIAA, Dallas, Tex., 3 February 1973.
- . "Prehistory of the Telephone." Lecture, American Acoustical Society, Washington, D. C., 23 April 1973.
- Cannon, Walter F. "The Darwin-Whewell Controversy." Lecture, Geological Society of London, 18 October 1972.
- . "The Origins of Darwin's Theory." Lecture, Chelsea College, University of London, 17 November 1972.
- . *The Uniformitarian-Catastrophist Debate*. Reprint, Bobbs-Merrill Reprint Series in History of Science, 55 pages.
- . Commentary on "Scientists Go To Sea." Oceanography Session, AAAS Annual Meeting, December 1972.
- Davis, Audrey B. "The Circulation of the Blood and Chemical Anatomy." Included in Festschrift honoring Walter Pagel: *Science, Medicine, Society in the Renaissance*, Allen Debus, editor, 1972, pages 25–27. Pub. Neil Watson.
- . "Rudolf Schindlre's Role in the Development of Gastroscopy." *Bulletin of the History of Medicine*, volume XLVI, 1972, pages 150–170.
- . *Circulation of the Blood and Medical Chemistry in England, 1650–1680*. Coronado Press, Lawrence, Kansas, 1973.
- . "The Emergence of American Dental Medicine: The Relation of the Maxillary Antrum to Focal Infection." Lecture, Galveston Medical School, Galveston, Tex., 23 February 1973.
- Davis, Audrey B., and Jon B. Eklund. "Magnesia Alba before Black." *Pharmacy in History*, volume 14, 1972, pages 139–146.
- Davis, Audrey B., and Uta C. Merzbach. "Soundings Then and Now: Audition and the First Fifty Years of American Psychology Laboratories." Invited paper, Annual History of Science Meeting, Washington, D.C., December 1972.
- Also see* Eklund, Jon B., and Audrey B. Davis.



- Eklund, Jon B. "G. E. 1; Odyssey of an Instrument." Lecture, Curators of Dept. of Science and Technology, Smithsonian Institution, 15 December 1972.
- . "Inside the Atom." Museum Lecture, Smithsonian Institution, 3 February 1973.
- . "Curiosities in the History of Technology." Lecture, Maryland Student Engineering Asso., University of Maryland, 7 March 1973.
- Eklund, Jon B., and Audrey B. Davis. "Joseph Black Matriculates: Medicine and Magnesia Alba." *Journal of the History of Medicine and Allied Sciences*, volume 27, 1972, pages 396–417.
- Also see Davis, Audrey B., and Jon B. Eklund.
- Hamarneh, Sami K. "Pharmacy in Medieval Islam and the History of Drug Addiction." *Medical History*, volume 16, 1972, pages 226–237.
- . "A History of Arabic Pharmacy." *Physis*, volume 14, 1972, pages 5–54.
- . "History of the Dental Exhibits at the Smithsonian Institution." *Bulletin of the History of Dentistry*, volume 20, December 1972, pages 46–65.
- . "Physicians and Practitioners During the Arabic Golden Age." *Alexandria Medical Journal*, volume 18, number 4, 1972, pages 1–12.
- . "Some Aspects of Medical Practice and Institutions in Medieval Islam." *Episteme*, volume 7, 1973, pages 15–31.
- . *Temples of the Muses and a History of Pharmacy Museums*. The Naito Foundation, Tokyo, Japan, 1972.
- . "Experimentation, Ethics and Education in Medieval Arabic Medicine and Pharmacy." Johns Hopkins University, History of Medicine Seminar, Baltimore, Md., 24 June 1973.
- . "Education and Pharmacy Museums in Historical Perspective." Lecture, Columbus, Ohio, State University, February 1973.
- . "Medico-pharmaceutical Museums at Cultural Centers of International Impact." Lecture, All-India Institute of Medical Research, New Delhi, India, 25 May 1973.
- Harris, Michael R. "A Behind the Scenes Tour of the Division of Medical Sciences." Lecture, The Women's Auxiliary of the Fairfax Medical Society, October 1972.
- . "Photographs as Artifacts—American Hospitals." Lecture, Department of Science and Technology, Smithsonian Institution, 20 November 1972.
- Jackson, Everett. "The Evolution of Dental Extraction Instruments." Lecture, Advanced Senior Science Students, Oxon Hill High School, Oxon Hill, Md., 1973.
- . "A Brief History of the Division of Medical Sciences." Lecture, Fairfax County Auxiliary of the American Medical Assn., 1973.
- . "Cardiac Assist Devices: From Heart Pumps to Pacemakers." Lecture, Advanced Senior Science Students, Montgomery Hills Junior High School, Silver Spring, Md., 1973.
- . "False Teeth." Lecture, Adult Enrichment Program, Montgomery Junior College, Takoma Park, Md., 1973.
- . "The History of Dentistry in America, 16th–17th Centuries." Lecture, Department of Science and Technology, Smithsonian Institution, 21 March 1973, and Museum Lecture, Smithsonian Institution, 5 May 1973.
- Leckie, Doris. "A Brief Review of the Evolution of the Instruments Used in the Surgical Practice of Bloodletting." Museum Lecture, Smithsonian Institution, 17 March 1973.
- . "Interpreting the History of a Medical Specialty through its

- Instruments—The Evolution of Cupping Glasses." Paper, Annual History of Medicine Meeting, Cincinnati, Ohio, May 1973.
- Mayr, Otto. "Von C. T. Porter zu J. F. Radinger: Die Anfänge der Schnellaufenden Dampfmaschine und der Maschinendynamik." *Technikgeschichte* 40, 1973, pages 1–32.
- . "The Emergence of Feedback Control in the 18th Century." Lecture, Baltimore Section of IEEE, Controls Section. Columbia, Md. 24 October 1972.
- . "History of Technology in Engineering Education." Lecture, Annual Meeting, American Institute of Chemical Engineers, New York, 29 November 1972.
- . "Feedback Control in 18th Century Britain." Lecture, Mechanical Engineering Colloquium, Univ. of Minnesota, Minneapolis, 21 February 1973.
- . "The Science-Technology Relationship: Problems of Historiography." Lecture, Symposium on the Relationship of Science and Technology; Burndy Library, Norwalk, Conn., 24 March 1973.
- . "Perpetual Motion: The Decline and Fall of a Scientific Problem." Museum Lecture, Smithsonian Institution, 7 April 1973.
- Morris, Danny A. "It's About Time." *The Galaxy*, September 1972, Lafayette, Calif., page 6.
- . "Art Deco Apartment Structure in Arlington." *The Virginia Phoenix*, Fall 1972, Kilmarnock, Va., 2 pages.
- . "The Development of the Paper Clip." *The American Collector*, June 1973, Lafayette, Calif., 2 pages.
- Multhauf, Robert P. "A Premature Science Advisor: Jacob A. Weber (1737–1792)," *Isis*, volume 63, 1972, pages 356–369.
- . "The Constitution of Saltpeter, According to Becher and Stahl." *Science, Medicine and History*, volume 1, Allen Debus, editor, New York, 1973, pages 214–225.
- . Editor of *Isis*, a quarterly journal of the History of Science Society.
- Post, Robert C. "Charles B. Page and the Induction Coil." Lecture, Joseph Henry Symposium, Washington, D. C., December 1972.
- Sivowitch, Elliot. "Experimental Evolution of the Telephone." Lecture, Acoustical Society of America, Audio Engineering Society, Washington, D. C., 23 April 1973. (Assisted by J. E. Brittain and Ray Hutt.)
- Tropp, Henry S. "John Charles Fields." *Dictionary of Scientific Biography*, volume IV, page 617.
- . "Benjamin Gompertz." *DSB*, volume V, page 466.
- . "Edouard Goursat." *DSB*, volume V, pages 481–483.
- . "George Bruce Halsted." *DSB*, volume VI, pages 76–77.
- . Review of "A Computer Perspective." *Science*, 11 May 1973, pages 590–591.
- . "History of Computers." Colloquium lecture, University of Arizona, Department of Computer Science, 14 March 1973.
- . "Computer History Project." Lecture, Washington Chapter, DPMA, George Washington University Faculty Club, 21 February 1973.
- May, K. O., and H. S. Tropp. "Some Algebraic Equations Do Not Have Exactly  $\infty$ -roots." *Mathematics Teacher*, February 1973, pages 179–182.
- Vogel, Robert M. "The Industrial Archeology of America's Mechanical and Civil Engineering." Lecture, George Washington University-Smithsonian Institution course on material culture, Washington, D. C., 26 October 1972.
- . "The State of Industrial Historic Preservation in the United States."

Lecture, National Trust for Historic Preservation, Annual Meeting, Washington, D. C., 28 October 1972.

———. "Roebling and the Delaware Aqueduct." Lecture, American Society of Civil Engineers (at dedication of the Delaware Aqueduct (1848) as a National Historic Civil Engineering Landmark), Lackawaxen, Pa. 12 November 1972.

———. "Industrial Archeology and Historic Preservation." Lecture, Historic Preservation Seminar, University of Vermont, Montpelier, Vt., 14 November 1972, and at Cooperstown Graduate Seminar, Cooperstown, N. Y., 16 November 1972.

———. "The Industrial Archeology of American Civil Engineering." Lecture, American Society of Civil Engineers, Lehigh Valley Section, 50th Anniversary Dinner Meeting. Bethlehem, Pa., 11 December 1972.

———. "The Meaning of Industrial Archeology." Lecture, MIT Washington Club, Washington, D. C., 18 January 1973.

———. "The History and Heritage of Mechanical Engineering in America." Lecture, American Society of Mechanical Engineers, Baltimore Sec., Baltimore, Md., 26 March 1973.

———. "The Recognition and Preservation of Industrial Structures." Lecture, Maryland Historical Trust, special meeting for the county committees, Baltimore, Md., 31 March 1973.

———. "Industrial Archeology at the National Museum of History and Technology." Lecture, Smithsonian Associates "Conversations with Curators" class, Washington, D. C., 7 May 1973.

———. "The State of Preservation and Loss of Industrial Structures in the United States." Lecture, First International Conference on the Conservation of Industrial Monuments, Ironbridge, England, 1 June 1973. (To be published in the Congress' *Proceedings*.)

———. Editor of *Newsletter of the Society for Industrial Archeology* (bimonthly), and miscellaneous publications for the Society.

Warner, Deborah J. "The First Celestial Globe of Willem Janszoon Blaeu." *Imago Mundi*, volume 25 (1971), pages 29–38.

### Freer Gallery of Art

*Ars Orientalis*, Volume IX. Ann Arbor: University of Michigan, 1973.

Atil, Esin. "2,500 Years of Persian Art." *Marzhaye Now (New Frontiers)*. Persian translation. Teheran: United States Information Agency, volume XVII–2, pages 17–24, February 1973.

———. "Ottoman Miniature Painting under Sultan Mehmed II." *Ars Orientalis* (1973), volume IX, pages 103–120.

———. "Turkish Art of the Ottoman Period." 84 pages. Ankara: Ajans-Türk, 1973.

———. "Ilkhanid Candlesticks with the Labors of the Months." Lecture. The Sixth International Congress of Iranian Art and Archaeology, Oxford University, England, September 1972.

———. "Turkish Miniatures from the Topkapi Palace Museum." Lecture. National Society of Arts and Letters, Embassy of Turkey, Washington, D.C., November 1972.

———. "Christian and Islamic Miniatures from the Near East." Lecture. Armenian Cultural Salons, Washington, D.C., February 1973.



Chase, W. Thomas, director of art film, "The Art of the *Hyōg shi*." Cinematographers were James T. Hayden and W. Thomas Chase, with Martin P. Amt, narrator.

———. "Examination of Art Objects in the Freer Gallery Laboratory." *Ars Orientalis* (1973), volume IX, pages 79–88.

———. "Comparative Analysis of Archaeological Materials—Bronzes—Interim Report Number 2." Lecture. International Council of Museums Conservation Committee Working Group on Metals, Madrid, Spain, September 1972.

———. "The Art of the *Hyōgushi*." Introductory lectures: The International Institute for Conservation of Historic and Artistic Works, Lisbon, Portugal; Institut Royale du Patrimoine Artistique, Brussels, Belgium; The International Institute for Conservation of Historic and Artistic Works, United Kingdom Group, London, England; and Ashmolean Museum, Oxford, England, September and October 1972.

———. "Metalworking Other Than Bronzes." "Radiography of Bronzes." "Analyses of Ancient Metal." Lectures. American Association of Museums Conservation Workshop, Los Angeles County Museum of Art, California, February 1973.

———. "Comparative Analysis of Archaeological Bronzes." Lecture. American Chemical Society, Fifth Symposium on Archaeological Chemistry, Dallas, Texas, April 1973.

———. "Oriental Art and Its Conservation." Introductory lecture with film, "The Art of the *Hyōgushi*." American Institute for Conservation Meeting, Nelson Gallery of Art, Kansas City, Missouri, June 1973.

Gettens, Rutherford J. "Japanese Paintings—Technical Studies and Conservation at the Freer Gallery of Art." *Conservation of Paintings and the Graphic Arts* (1972), IIC Lisbon Congress 1972, pages 501–515.

———. "Pigments of Japanese Painting." Lecture. International Council of Museums Conservation Committee, Madrid, Spain, October 1972.

———. "Japanese Paintings: Technical Studies and Conservation at the Freer Gallery of Art." Lecture. The International Institute for Conservation of Historic and Artistic Works, Fifth International Congress, Lisbon, Portugal, October 1972.

———. "Ancient Chinese Bronze Ceremonial Vessels in the Freer Gallery of Art." Lecture. Ohio State University, Columbus, Ohio, May 1973.

Gettens, Rutherford J., Robert L. Feller, and W. Thomas Chase. "Vermilion and Cinnabar." *Studies in Conservation* (1972), volume XVII, pages 45–69.

Knapp, Josephine H. "Chinese Pottery." Lecture. Woodbridge Art Guild, Woodbridge, Virginia, June 1973.

Lawton, Thomas. "Recent Archaeological Excavations on Mainland China." Lecture. National Women's Democratic Club, Washington, D.C., February 1973.

———. "The Beginnings of Chinese Civilization." Lecture. Georgetown University, Washington, D.C., October 1972.

Lovell, Hin-cheung. "Sung and Yüan Monochrome Lacquers in the Freer Gallery." *Ars Orientalis* (1973), volume IX, pages 121–130.

———. "Chinese Ceramics at the Freer." Lecture. Corcoran School of Art, Washington, D.C., February 1973.

———. "Aspects of Chinese Art." Lecture. Northern Virginia Community College, Annandale, Virginia, November 1972.

Stern, Harold P. *Ukiyo-e Painting*. 319 pages, 118 illustrations. Baltimore: Garamond/Pridemark, 1973.

- . *The Magnificent Three: Lacquer, Netsuke and Tsuba*. 141 pages, 125 illustrations. New York: Japan Society, 1972.
- . "Preface." In *Zaiga Hihō—Katsushika Hokusai (Ukiyoe Prints in Western Collections)*. Tokyo: Gakken, 1973.
- . "The Magnificent Three: Lacquer, Netsuke and Tsuba." Lecture. New York, September 1972.
- . "The Art of the *Hyōgushi*." Introductory lectures: The International Institute for Conservation of Historic and Artistic Works, Lisbon, Portugal; Institut Royale du Patrimoine Artistique, Brussels, Belgium; The International Institute for Conservation of Historic and Artistic Works, United Kingdom Group, London, England, September and October 1972.
- Winter, John. "Radiocarbon Dating by Thermoluminescent Dosimetry." *Archaeometry* (1972), volume XIV, pages 281–286.
- . "Preliminary Investigations on Chinese Ink in Far Eastern Paintings." Lecture. American Chemical Society, Fifth Symposium on Archaeological Chemistry, Dallas, Texas, April 1973.
- Winter, John, and R. S. Merrillees. "Bronze Age Trade between the Aegean and Egypt: Minoan and Mycenaean Pottery from Egypt in Brooklyn." *Miscellanea Wilbouriana* (1972), volume I, pages 101–133.

### National Collection of Fine Arts

- Booth, Abigail. "An Inventory for the Art Researcher." Article. 3 pages, 2 illustrations. *Museum News*, December 1972.
- . "Bicentennial Inventory of American Paintings." Lecture. Historic Annapolis, Inc., Annapolis, Maryland, 15 November 1972.
- . "Bicentennial Inventory of American Paintings." Lecture. Historical Society of Princeton, Princeton, New Jersey, 29 November 1972.
- . "Bicentennial Inventory of American Paintings." Lecture. Annual State Convention, Pennsylvania State Division, American Association of University Women, Williamsport, Pennsylvania, 28 April 1973.
- . "Bicentennial Inventory of American Paintings." Lecture. Chambersburg Branch American Association of University Women, Chambersburg, Pennsylvania, 16 May 1973.
- . "Bicentennial Inventory of American Paintings." Lecture. Aberdeen-Harford Branch American Association of University Women, Belair, Maryland, 21 May 1973.
- Breeskin, Adelyn D. "20th Century American Artists." Lecture. Wives Seminar Foreign Service Institute, Washington, D. C. (Monthly lecture), 1972–1973.
- . "20th Century American Art and the National Collection of Fine Arts." Foreign Service Officers, United States Information Agency. National Collection of Fine Arts, Washington, D.C., 13 July 1972.
- . "The Saidie A. May Collection." Lecture. Baltimore Museum of Art, Baltimore, Maryland, 24 September 1972.
- . "The Role of Women in the Arts." Lecture. Smithsonian Associates, Washington, D. C., 15 November 1972.
- . "20th Century American Art and the National Collection of Fine Arts." Lecture. Senior Seminar in Foreign Policy, Department of State. National Collection of Fine Arts, Washington, D. C., 27 November 1972.
- . "American Contemporary Art." Lecture. Capitol Speakers Club, Washington, D. C., 28 November 1972.



- . "Inside the Art Museum World." Lecture. Smithsonian Associates Series, Washington, D. C., 30 January 1973.
- . "Tribute to Kenneth Sawyer." Lecture. Baltimore Museum of Art, Baltimore, Maryland, 29 April 1973.
- . "Kassel Documenta." Lecture. Corcoran School of Art, Washington, D. C., 5 May 1973.
- . "20th Century American Art." Lecture. Smithsonian Associates Series, Washington, D. C., 14 May 1973.
- . "Women in the Arts." Lecture. Virginia Museum of Fine Arts, Richmond, Virginia, 14 May 1973.
- . "American Impressionism." Lecture. Smithsonian Associates, Urban Life Center, Columbia, Maryland, 5 June 1973.
- . "Prelude to Martha Jackson's Career." Page 3 in *The Private Collection of Martha Jackson*. Catalog, University of Maryland Art Gallery, College Park, Maryland: Press of A. Colish, New York, 1973.
- . "Lowell Nesbitt." In *Lowell Nesbitt: The Flower Series—1964–1973*, Corcoran Gallery of Art, Washington, D. C.: Garamond/Pridemark, Baltimore, Maryland, 1973.
- Muhlert, Jan K. "The Contemporary Art Scene in Washington." Moderator for Smithsonian Associates Seminar (10 sessions), January–March 1973.
- Fink, Lois M. "The Image of the Common Man in Nineteenth Century Art." Lecture. National Collection of Fine Arts, 21 February 1973.
- . "The Image of Innocence in Nineteenth Century Art: Children." Lecture. National Collection of Fine Arts, 28 February 1973.
- . "The Image of the Hero in Nineteenth Century Art." Lecture. National Collection of Fine Arts, 14 March 1973.
- . "The Image of Death in Nineteenth Century Art." Lecture. National Collection of Fine Arts, 21 March 1973.
- Flint, Janet A. *The Way of Good and Evil—Popular Religious Lithographs of Nineteenth-Century America*. 12 pages, 1 illustration. 15 September 1972.
- . *Solon A. Borghum*. 6 pages, 1 illustration. 20 October 1972.
- . *Johann Hermann Carmiencke—Drawings and Watercolors*. January 1973.
- Herman, Lloyd E. "From Class Art to Mass Art." Lecture. The Woman's National Democratic Club, Washington, D.C., 26 February 1973.
- . "American Crafts." Lecture. United States Information Agency, Washington, D. C., 17 May 1973.
- McClelland, Donald R. "The Arts in 17th Century Maryland." Lecture. Olde Princess Anne Days, Princess Anne, Maryland, 14 October 1972.
- . "Washington and the Contemporary Art Scene." Lecture. Crossroads Community, Alexandria, Virginia, 30 March 1973.
- . "Childe Hassam." Lecture. Lyme Historical Society, Florence Griswold House, Old Lyme, Connecticut, 24 June 1973.
- Taylor, Joshua C. "The Hand and The Spirit." Lecture. National Collection of Fine Arts. 20 September and 4 November 1972.
- . "Where is Art?" Lecture. University of Chicago Alumni Club of Washington, D. C., 4 October 1972.
- . "Mrs. Page and the Photographic Melancholy." Lecture. Detroit Institute of Art, 11 October 1972.
- . "What Ever Happened to the Avant-garde?" "Edgar Degas and the Photographic Melancholy" and "Twentieth Century Mexican Art: Art and Nationality." Three lectures. Claremont Men's College, Claremont, California, 17–18 October 1972.



- . "What Ever Happened to the Avant-garde?" Lecture. Society for Contemporary Art, Chicago, 8 November 1972.
- . Review of "The Memoirs of Giorgio de Chirico." Translated and with an introduction by Margaret Crosland. University of Miami Press, Coral Gables, Florida, *Art in America*, November–December, 1972.
- . "Where is Art?" Lecture. University of Chicago Alumni of New York, 12 December 1972.
- . T. V. interview. "The Hand and The Spirit." Deena Clark Show, 23 December 1972.
- . "Seeing and Thinking." Series of six lectures for the Smithsonian Associates, January–February 1973.
- . "A Curator For the Future." Lecture. College Art Association, New York, 25 January 1973.
- . "The Life and Times of American Art." Lecture. Sheldon Memorial Art Gallery, Lincoln, Nebraska, 22 March 1973.
- . Review of *Marinetti. Selected Writings*. Edited by R. W. Flint. *Art in America*, March–April 1973.
- . "The Historical Problem of American Art." Lecture. Symposium on Nineteenth-Century American Painting, University of Delaware, 20 April 1973.
- . "Where is Art?" and "The Present and Futurism." Two lectures. University of Tennessee, 26–27 April 1973.
- . Fritz Scholder Catalogue Essay. An exhibition organized by Hayden Gallery, Massachusetts Institute of Technology, April–May 1973.
- . Juror, Concurso de Arte Pictórico Xerox, 1973. Panama City, Panama, 8 May 1973.
- . "Donde está el arte?" and "Where is Art?" Two lectures. University of Panama and Canal Zone College, 8–9 May 1973.

### Archives of American Art

- Breton, Arthur J. *A Guide to the Manuscript Collections of the New York Historical Society*. 2 vols. Westport, Connecticut, Greenwood Press, Inc. 1972.
- Brown, Robert. "The Archives of American Art." Lecture. Ogunquit Art Association, Ogunquit, Maine, July 1972.
- . "Walt Kuhn in the Archives of American Art." Lecture. York, Maine, July 1972.
- . "The Archives of American Art—Oral History Project." New England Oral History Conference, Waltham, Massachusetts, June 1972.
- . "Artists' Organizations, 1930–1970." Boston Visual Artists Union, Boston, Massachusetts, June 1972.
- Freivogel, Elsie F. "Women in Archives: The Status of Women in the Academic Professions." *The American Archivist*, volume 36, number 3, April 1973, pages 183–201.
- . "Lily Martin Spencer." *Archives of American Art Journal*, volume 12, number 4, 1972, pages 9–14.
- McCoy, Garnett. *David Smith*. New York, Praeger Publishers, 1973.
- . "The Price of a Small Motor Car." *Annual Report*, Isabella Gardner Museum, 1973.
- . "Photographs and Photography." *Archives of American Art Journal*, volume 12, number 3, 1972, pages 1–18.

- . "Some Recently Discovered Thomas Eakins Photographs." *Archives of American Art Journal*, volume 12, number 4, 1972, pages 15–22.
- Woolfenden, William E. "The Archives of American Art." Lecture. Historic Annapolis, Annapolis, Maryland, September 1972.

### National Armed Forces Museum Advisory Board

- Elliott, John M. *Magnificent Wheels for Those Flying Machines*, for the National Air and Space Museum, Smithsonian Institution.

### Joseph Henry Papers

- Hobbins, James M. "Shaping a Provincial Learned Society: The Early History of the Albany Institute." Paper presented at the American Academy of Arts and Sciences' Colloquium on the Early History of Societies for Promoting Knowledge in the United States, June 1973.
- Molella, Arthur P. "The Origins of Modern Physical Science: 1500–1700." History course, University of Maryland, Spring 1973.
- . "Editing the Papers of Joseph Henry." Talk. Lunchbox Forum, National Air and Space Museum. February 1973.
- Reingold, Nathan. "Definitions and Speculations: The Professionalization of Science in Nineteenth-Century America." Paper presented at the American Academy of Arts and Sciences' Colloquium on the Early History of Societies for Promoting Knowledge in the United States, June 1973.
- . "Éloge for Richard H. Shryock." *Isis*, volume 64, (March 1973), pages 96–100.
- . "William Harkness." Page 119 in *Dictionary of Scientific Biography*, volume 6. New York: Charles Scribner's Sons, 1972.
- . "Ferdinand Rudolph Hassler." Pages 165–166 in *Dictionary of Scientific Biography*, volume 6. New York: Charles Scribner's Sons, 1972.
- . "John Fillmore Hayford." Pages 188–189 in *Dictionary of Scientific Biography*, volume 6. New York: Charles Scribner's Sons, 1972.
- . "Joseph Henry." Pages 277–281 in *Dictionary of Scientific Biography*, volume 6. New York: Charles Scribner's Sons, 1972.
- . "Joseph Henry in Albany." Lecture, Albany Institute of History and Art, March 1973.
- . "Introduction to Science and Technology Series," 14 volumes of the *New American State Papers* published by Scholarly Resources, Inc., 1972.
- . "New York State Roots of Joseph Henry's National Career." Annual address, New York State Historical Association, July 1972, published in *New York History*, volume 54 (April 1973), pages 133–144.
- . "On Professionalization." Seminar talk, Department of the History of Science, Johns Hopkins University, February 1973.
- . "Science in Nineteenth-Century America." Lecture to course on History of Medicine in America at National Library of Medicine, March 1973.

### Office of American Studies

- Wilcomb E. Washburn. "American Indians," *The Americana Annual*, 1973:

*Yearbook of the Encyclopedia Americana*, 51st edition, (New York: Americana Corporation, 1973), pages 349–350.

———. "Campaign Banners," *American Heritage*, volume XXIII, number 6 (October 1972), pages 8–13.

———. "History, Anthropology, and the American Indian," *American Studies: An International Newsletter*, volume XI, number 1 (Autumn, 1972). [Condensation of article originally appearing in the *Pacific Historical Review*, August 1971].

### Conservation-Analytical Laboratory

Goodway, M. E. "Methods of Microscopy in Museum Conservation." Lecture to Document Examiners of Washington Area, 15 March 1973.

McMillan, E. Moderator and lecturer on paper conservation at Symposium of Washington Print Club, Washington Public Library, 14 January 1973.

———. "Three Months in Florence." *Foxcroft Alumnae Association Magazine*, volume 37, (1971), pages 10–12.

McMillan, E., and R. M. Organ. "Aid to a Hurricane-Damaged Museum." *IIC-AG Bulletin*, volume 10, number 1 (1969), pages 31–39. [Not previously reported.]

Olin, J. S. "Chemical Studies of Medieval Window Glass." Presented at 200th Anniversary Science Symposium, *Science for Survival*, Dickinson College, Carlisle, Pennsylvania, 9 March 1973.

———. "Neutron Activation Analytical Survey of Some Intact Medieval Glass Panels and Related Specimens." presented at Fifth Symposium on Archaeological Chemistry, American Chemical Society Meetings, Dallas, Texas, 10 April 1973.

———. "Neutron Activation and Electron Beam Microprobe Study of a Fourteenth Century Austrian Stained Glass Panel." International Conference on Application of Nuclear Methods in the Field of Works of Art, Accademia Nazionale dei Lincei, Rome, Italy, 24 May 1973.

Organ, R. M. "Conservation and Preservation of Materials." Lecture to Seminar for Historical Administrators, Williamsburg, Virginia, 6 July 1972.

———. "Techniques of Treating Metals." Lecture to Regional Conference on Preservation and Conservation, Williamsburg, Virginia, 12 September 1972.

———. "Deacidification." Lead to discussion at Institute of Paper Chemistry, Seminar for Paper Conservators, 8 November 1972.

———. "The Philosophy of Conservation." Lecture to Workshop on Conservation, American Association of Museums, Winterthur, Delaware, 4 December 1972.

———. "The Philosophy of Conservation." Lecture at Symposium of Washington Print Club, Washington Public Library, 14 January 1973.

———. "Conservation of Objects." Lecture to Woodlawn Conference, National Trust, 27 February 1973, Smithsonian Institution.

———. "The Conservation-Analytical Laboratory." Lecture to Smithsonian Associates, Smithsonian Institution, 27 February 1973.

———. "Conservation of Collections." Lecture to Aviation Committee, International Association of Transport Museums, Dearborn, Michigan, 24 May 1973.

———. "Artefact Conservation." Lectures No. 1 to 20 and 41 to 60 of a series delivered in Fall and Winter at Smithsonian Institution, 1972–1973.



## Smithsonian Institution Libraries

- Goodwin, Jack. "Special Libraries and Special Librarianship." Seminar presented at the Graduate School of Library Science, Catholic University, October 1971. [Not previously reported.]
- . "Special Libraries and Special Librarianship." Seminar presented at the School of Library and Information Services, University of Maryland, November 1971. [Not previously reported.]
- . "Architectural Books in the Smithsonian Libraries." Seminar presented to a visiting graduate seminar from Columbia University at the Museum of History and Technology, April 1972. [Not previously reported.]
- . "Current Bibliography in the History of Technology (1970)." *Technology and Culture*, volume 12 (1972), pages 226–294.
- . "A Preliminary Survey of Materials Available for the Study of American Library History in Washington, D.C." In *Library History Seminar, no. 4, Proceedings*, edited by Harold Goldstine and John M. Goudeau, pages 23–29. Tallahassee: Florida State University Press, 1972. [Published in microfiche.]
- . "Special Libraries and the Special Library Association." Seminar presented at the Graduate School of Library Science, Catholic University, January 1973.
- . "The Literature of Practical Building and Vernacular Architecture in the United States in the Nineteenth Century." Seminar presented to a visiting graduate seminar from Columbia University at the Museum of History and Technology, March 1973.
- Leslie, Philip. "Forecast for Library/Information Service Technology," Presented at Symposium IV, the 2nd ASIS Mid-Year Regional Conference, Bloomington, Minnesota, 27 April 1973.
- Shank, Russell. "Future Shock: Notes Towards a Summary and Direction." In *Directions in Education for Information Science: Proceedings of a Symposium for Educators*, Denver, Colorado, 11–13 November 1971, (ED 061947) pages 169–177.
- , E. Olson, and H. Olsen. "Library and Information Networks." In *Annual Review of Information Science and Technology*, 1972. Washington, D.C.: American Society for Information Science, 1972, pages 279–321.
- . "Networking Via Cable: Problems and Prospects." *Drexel Library Quarterly*, volume 9 (January/April, 1973), pages 117–125.
- , and F. Norwood. "Telecommunications: Prospects for Research Libraries." *Association of Research Libraries: Minutes of the Eightieth Meeting*, 12–13 May 1972, Atlanta, Georgia, pages 2–9.
- Sloan, Elaine. "User Assessment of Collections: A Tool for Research and Planning." Presented at the Special Libraries Association Conference, Pittsburgh, Pennsylvania, 12 June 1973.

## Office of Public Affairs

[Leaflets issued by the Office]

- "References to Witchcraft." Department of Cultural History, Leaflet 72–16.
- "Spoons—Selected Introductory Bibliography." Department of Cultural History, Leaflet 72–17.
- "Highlights of the National Zoo." National Zoological Park, Leaflet 72–18.

- "Price Guides to Antiques." Department of Cultural History, Leaflet 72-19.
- "Suggested Publications on Fishes—Central and South America—Freshwater and Marine." Department of Vertebrate Zoology, Leaflet 72-20.
- "Photographic Services Division Price List." Photographic Services Division, Leaflet 72-21.
- "Selected Readings on the First Ladies." Photographic Services Division, Leaflet 72-22.
- "Sharks." Department of Vertebrate Zoology, Leaflet 72-23.
- "Martha Washington." Division of Political History, Leaflet 72-24.
- "Dolley Madison." Division of Political History, Leaflet 72-25.
- "Mary Todd Lincoln." Division of Political History, Leaflet 72-26.
- "Grace Coolidge." Division of Political History, Leaflet 72-27.
- "Eleanor Roosevelt." Division of Political History, Leaflet 72-28.
- "Lady Bird Johnson." Division of Political History, Leaflet 72-29.
- "Dress of Martha Washington." Division of Political History, Leaflet 72-30.
- "Dress of Dolley Madison." Division of Political History, Leaflet 72-31.
- "Dress of Mary Todd Lincoln." Division of Political History, Leaflet 72-32.
- "Dress of Grace Coolidge." Division of Political History, Leaflet 72-33.
- "Dress of Eleanor Roosevelt." Division of Political History, Leaflet 72-34.
- "Dress of Lady Bird Johnson." Division of Political History, Leaflet 72-35.
- "Dress of Patricia Nixon." Division of Political History, Leaflet 72-36.
- "Political Campaign Slides." Division of Political History, Leaflet 72-37.
- "Bibliography on Ancient Coins." Division of Numismatics, Leaflet 72-38.
- "Bibliography on Confederate and Southern States Currency." Division of Numismatics, Leaflet 72-39.
- "Photograph Numbers of Dresses of the First Ladies." Division of Political History, Leaflet 73-1.
- "References on Dinosaurs and Other Prehistoric Reptiles." Department of Paleobiology, Leaflet 73-2.
- "Dresses of the First Ladies." Division of Political History, Leaflet 73-3.
- "Descriptions of First Ladies' Mannequins." Division of Political History, Leaflet 73-4.

### Division of Performing Arts

- Davis, Gerald L. "African-American Coil Basketry in Charleston County, S.C.: Affective Characteristics of An Artistic Craft in a Social Context." *American Folklife*, Don Yoder, editor, University of Texas Press, Austin, Texas, 1972.
- Rinzler, Ralph C. Introduction. *The Songs of Doc Watson*, Oak Publications, New York, 1971.
- . Preface. *Reissue of Handicrafts of The Southern Highlands*, Allen Eaton, Dover Publications, New York, 1972.
- Rinzler, Ralph C., and Norman Cohen. *Uncle Dave Macon, a Bio-Discography*, John Edwards Memorial Foundation Special Series, No. 3., The John Edwards Memorial Foundation, Inc. Folklore & Mythology Center, University of California, Los Angeles, California, 1970.
- Martin Williams. *The Jazz Tradition*, Oxford University Press and N.A.L. (Winner of ASCAP-Deems Taylor Award, 1972).
- . *Jazz Masters in Transition, 1957-1969*, MacMillan Co.
- . "Scott Joplin: Genius Rediscovered," *Down Beat*, 25 November 1971.
- . "Snickersnapper, Snitznoodle, All the Raggedys and Snarlyboodle,"

(article on the Raggedy Ann books of Johnny Gruelle), *Washington Post Book World*, 6 August 1972.

———. "Following the Yellow Brick Road" (article on the Oz books of L. Frank Baum), *Washington Post Book World*, 10 December 1972.

———. "Comic Strip Artistry" (review of several books on comic strips), *Washington Post Book World*, 31 December 1972.

———. "Prolonging an Affair with 'Something of a Moron'" (article-review on pulp magazines), *Washington Post*, 29 January 1973. [Most of the *Washington Post* articles have been republished in the *San Francisco Examiner* and other papers around the country.]

———. "Swinging Smithsonian," *Washington Star*, 11 March 1973.

### Anacostia Neighborhood Museum

Kinard, John R. "Intermediaries Between the Museum and the Community," *EKISTICS*, volume 210 (May 1973), pages 261–264.

### Reading Is Fundamental (RIF), Inc.

*RIF's Guide to Book Selection 1973*, 91 pages, 1973.

*RIF Newsletter*, volume 3, issue 1 (January 1973), 12 pages, and volume 3, issue 2 (May 1973), 12 pages.

*Handbook* (for development and operation of a RIF Program; in looseleaf form, organized in eight sections), 1973.

### Office of Elementary and Secondary Education

*Learning Opportunities for Schools.*

*LET'S GO to the Smithsonian.*

### Information Systems Division

Creighton, Reginald A., Penelope Packard, and Holley Linn. "SELGEM RETRIEVAL: A General Description." *Smithsonian Institution Procedures in Computer Sciences*, volume I, number 1. July 1972.

Roth, H. Daniel, and Richard Koritzer. "Applications of Statistical Analysis to Scientific Dental Studies." *Georgetown Dental Journal*, volume 38, number 1.

Buechner, H., and H. Daniel Roth. "The Lek System in Uganda Kob Antelope," in press, *The American Scientist*.

### National Gallery of Art

Buck, Richard D., and Robert L. Feller. "The Examination and Treatment of a Fayum Portrait," *Conservation of Paintings and the Graphic Arts, Preprints of Contributions to the Lisbon Conference 1972*, London International Institute for Conservation of Historic and Artistic Works, pages 801–807.



- Edelstein, J. M., Review of *The Letters of Roger Fry*, Denys Sutton, editor, *The New Republic*, (17 March 1973), pages 25–26.
- Feller, Robert L. "Scientific Examination of Artistic and Decorative Colorants," *Journal of Paint Technology*, volume 44 (1972), pages 51–58.
- . "Problems in the Investigation of Picture Varnishes," *Conservation of Paintings and the Graphic Arts, Preprints of Contributions to the Lisbon Conference 1972*, London International Institute for Conservation of Historic and Artistic Works, pages 201–209.
- Keisch, Bernard "The Atomic Fingerprint: Neutron Activation Analysis," *The World of the Atom Series*, United States Atomic Energy Commission, 1972.
- . "X-ray Diffraction and the Composition of Lead White," 1971, 1972 *Studies in the History of Art*, Washington, D.C.: National Gallery Of Art, 1972, pages 121–132.
- . "Mössbauer Effect Studies in the Fine Arts," *Archaeometry*, volume 15 (1973), pages 79–104.
- Keisch, B. and Holly H. Miller, "Recent Art Forgeries: Detection by Carbon-14 Measurements," *Nature*, volume 240 (1972), pages 491–492.
- Lewis, Douglas, "Il Classicismo Romantico in America: il tempio nella sua forma completa," *Bollettino del Centro Internazionale di Studi di Architettura "Andrea Palladio"*, Vicenza, volume 13 (Summer 1972), pages 299–309.
- , translator, G. P. Bordignon Favero: *The Villa Emo at Fanzolo, Corpus Palladianum*, 5, University Park: Pennsylvania State University Press, 1972.
- . "Un disegno autografo del Sanmicheli e la notizia del committente del Sansovino per S. Francesco della Vigna," *Bollettino dei Musei Civici Veneziani*, Venice, volume 3–4 (1972), pages 7–36.
- Parkhurst, Charles. "Red-Yellow-Blue. A Color Triad in Seventeenth-Century Painting," *The Baltimore Museum of Art Annual*, volume 4, ("Studies in Honor of Gertrude Rosenthal," II), pages 33–39.
- . "Louis Savot's 'Nova-antiqua' Color Theory, 1609." *Album Amicorum J. G. van Gelder . . .*, The Hague: Nijhoff, 1973, pages 242–47.
- Scott, David W. "The City From Greenwich Village by John Sloan," 1971, 1972 *Studies in the History of Art*, Washington: National Gallery of Art, 1972, pages 107–119.
- Shapley, Fern Rusk. *Paintings from the Samuel H. Kress Collections: Italian Schools, XVI–XVIII Century*, London: Phaidon Press, 1973.
- . "Titian's *Venus with a Mirror*," 1971, 1972 *Studies in the History of Art*, Washington: National Gallery of Art, 1972, pages 93–105.
- Shepard, Katharine. Review of *La Découverte de la Domus Aurea et la Formation des Grotesques a la Renaissance*, by Nicole Dacos, *American Journal of Archaeology*, July 1972, pages 344–345.
- White, Christopher J. "The Armand Hammer Collection: Drawings," *Apollo*, volume 95 (June 1972), pages 456–463.

## Appendix 9

### PUBLICATIONS OF THE SMITHSONIAN INSTITUTION PRESS IN FISCAL YEAR 1973

#### General Publications

##### BOOKS

- Anacostia Neighborhood Museum: 5th Anniversary.* ii + 54 pages, 111 black and white illustrations. September 1972.
- Checklist of the Permanent Collection: National Portrait Gallery, Smithsonian Institution, Washington, D.C.* 1972. 54 pages. 9 February 1973. Paper \$1.25.
- Paul E. Desautels. *Gems in the Smithsonian.* 63 pages, 44 color plates, 5 black and white illustrations, 19 line drawings. 27 July 1972. Cloth: \$6.95. Paper: \$2.50.
- Drugs in Perspective: A Fact Book on Drug Use and Misuse.* 48 pages, 9 black and white illustrations, 19 line drawings. 12 October, 1972. Paper: \$1.45.
- Exhibition 73.* January 14 to February 18, 1973 at the Anacostia Neighborhood Museum. Fourth Annual Exhibit of the District of Columbia Art Association. 48 pages, 83 black and white illustrations. January 1973. Paper \$1.50.
- Handbook for Employees: Smithsonian Institution.* 31 pages, 20 black and white illustrations. 29 September 1972.
- Samuel F. Hildebrand and William C. Schroeder. *Fishes of Chesapeake Bay.* x + 388 pages. 211 figures. 12 April 1973. (Reprint of 1928 edition for the Smithsonian Institution by TFH Publications.) Hard cover: \$8.00.
- Kruger-Sprengel, Friedhelm. *The Role of NATO in the Use of the Sea and the Seabed.* Edited by Gerard J. Mangone. Woodrow Wilson International Center for Scholars, Ocean Series 304. iv + 45 pages, 2 black and white illustrations. October 1972. Paper: \$1.00.
- Marion Clayton Link. *Windows in the Sea.* 198 pages, 15 color and 52 black and white illustrations. 28 June 1973. Cloth: \$12.50.
- Ursula B. Marvin. *Continental Drift: The Evolution of a Concept.* vii + 239 pages, 102 figures. 25 May 1973. Cloth: \$12.50.
- Betty J. Meggers, Edward S. Ayensu, and W. Donald Duckworth, editors. *Tropical Forest Ecosystems in Africa and South America: A Comparative Review.* viii + 350 pages, 117 figures. 14 March 1973. Paper: \$5.95; Cloth: \$15.00.
- J. Jefferson Miller II. *18th-Century English Porcelain: A Brief Guide to the Collection in the National Museum of History and Technology.* 96 pages, 80 black and white and 1 color illustrations. 28 February 1973. Paper: \$1.50.
- Lillian B. Miller, Frederick Voss, and Jeannette M. Hussey. *The Lazzaroni: Science and Scientists in Mid-Nineteenth Century America.* xiii + 121 pages, 19 black and white illustrations. 26 December 1972. Paper: \$2.75.
- Roger Pineau. *Ballooning, 1782-1972.* Catalog of an exhibition presented by the

- National Air and Space Museum. 88 pages, 39 black and white illustrations. 8 November 1972. Paper \$2.00.
- Sheldon Reich. *Alfred H. Maurer, 1868–1932*. Foreword by Joshua C. Taylor. 167 pages. 13 February 1973.
- Nathan Reingold, editor. *The Papers of Joseph Henry*. Volume 1: *The Albany Years, December 1797—October 1832*. xxxix + 496 pages, 10 black and white illustrations. 26 December 1972. Cloth: \$15.00.
- S. Dillon Ripley. *On Museum Objects, Truth, and Education. Reflections of the Secretary of the Smithsonian Institution Upon the One Hundred and Twenty Fifth Anniversary of Its Founding*. 31 pages. September 1972.
- Smithsonian Opportunities for Research and Study in History, Art, Science*. Board of Academic Studies, Smithsonian Institution. 130 pages. 8 September 1972.
- Alexander Wetmore. *The Birds of the Republic of Panamá*. Part 3: *Passeriformes: Dendrocolaptidae (Woodcreepers) to Oxyruncidae (Sharpbills)*. iv + 631 pages, 48 figures, color frontispiece. 26 December 1972. Cloth: \$15.00.

## PAMPHLETS, FLYERS, AND OTHER PUBLISHED MATERIALS

- John M. Elliott. *Magnificent Wheels for Those Flying Machines*. Foldout and booklet questionnaire. 24 pages. 21 May 1973.
- Janet A. Flint. *Johann Hermann Carmiencke—Drawings and Watercolors*. January 1973.
- Janet A. Flint. *Solon H. Borglum, 1868–1922*. Foldout catalog of exhibition at National Collection of Fine Arts. 6 pages, 1 illustration. 20 October 1972.
- Janet A. Flint. *The Way of Good and Evil. Popular Religious Lithographs of Nineteenth-Century America*. Pamphlet Checklist for exhibition at National Collection of Fine Arts. 12 pages. 1 illustration. 15 September 1972.
- Hall of Printing and Graphic Arts*. Flyer foldout. 8 pages, 4 illustrations and map of hall. July 1972.
- Elizabeth Harris. *Chain Goldberg's Shtetl*. Checklist and biography of the artist. Foldout. 6 pages, 5 illustrations.
- Learning Opportunities for Schools, 1972–73*. Booklet. 18 pages. 1 illustration and 1 map of Mall complex. August 1972.
- Let's Go to the Smithsonian: Bulletin for Schools*: Office of Elementary & Secondary Education. Folders. July 1972–June 1973.
- NCFA Calendar*. July 1972–June 1973.
- The Sculpture of Franz Barwig*. Checklist and biography of the artist, for an exhibition at the Renwick Gallery of the National Collection of Fine Arts. 6 pages. August 1972.
- Who was George Washington? James Weldon Johnson? John F. Kennedy?* Educational folder for use with the "If Elected . . ." exhibition National Portrait Gallery. 8 pages. 17 October 1972.
- The Catalog of American Portraits*. Pamphlet. National Portrait Gallery. 8 pages. Reprint. 13 June 1973.
- Discourse and Dialogues at the Smithsonian*. Foldout. The Office of Seminars, Smithsonian Institution. 8 pages. 29 September 1972.
- Pop Hart*. Checklist and biography of artist. Folder. Division of Graphic Arts, The National Museum of History and Technology. 4 pages. 31 October 1972.
- Hall of Printing and Graphic Arts*. Foldout. The National Museum of History and Technology. 8 pages. July 1972.
- News in America, 1704–1970*. Poster-flyer for Henry R. Luce Hall of News Reporting. 2 pages. May 1973.



- Martina R. Norelli. *Artist-Naturalists: Observations in the Americas*. Pamphlet Catalog of exhibition with biographical notes. 8 pages 1 illustration. July 1972.
- Open Your Eyes to the National Museum of History and Technology, West Side*. Foler. Walking map and illustrated guide. 2 pages. 26 July 1972.
- Open Your Eyes to the National Museum of History and Technology, East Side*. Walking map and illustrated guide. 2 pages. 24 July 1972.
- Open Your Eyes to the National Museum of Natural History. Animal Highlights Tour*. Walking map and illustrated guide. 1 page. 24 July 1972.
- Selected Portraits of Prominent North American Indians*. Flyer Checklist. 4 pages. 20 March 1973.
- Smithsonian Institution Research Reports*. Numbers 1-4. Quarterly news bulletin. 8 pages. Summer 1972-Spring 1973.
- The McDonnell FH-1 Phantom*. Information Leaflet. 6 pages, 3 illustrations.
- The National Anthropological Archives*. Folder. 4 pages, 2 illustrations. 20 March 1973.
- The Right To Vote*. Booklet based on "The Right To Vote," a special exhibit at the National Museum of History and Technology. Booklet and exhibit prepared by Edith Petersilia Mayo. 16 pages, 21 illustrations. September 1972.
- The Wright Brothers*. Information Leaflet. 8 pages, 4 illustrations.
- Three Contemporary Printmakers: Jacob Kainen, Albert Christ-Janer, Tadeusz Lapinski*. Booklet. Biographical notes and checklist of exhibition at National Collection of Fine Arts. 12 pages, 3 illustrations. June 1973.
- Bicentennial Inventory of American Paintings Executed before 1914*. Foldout. National Collection of Fine Arts. 6 pages. Reprint. 27 February 1973.
- Electricity and Matter*. Folder guide to the Hall of Electricity. National Museum of History and Technology. 4 pages. Reprint. 10 April 1973.
- Wind Instruments*. Foldout. Division of Musical Instruments, National Museum of History and Technology. 6 pages. Reprint. 6 April 1973.
- Organs in Early America*. Foldout. Division of Musical Instruments, National Museum of History and Technology. 6 pages. Reprint. 6 April 1973.
- National Museum of Natural History*. Foldout building guide. Office of Public Affairs. 9 pages. Reprint. September 1972.
- National Zoological Park*. Foldout building guide. Office of Public Affairs. 14 pages. Reprint. 8 August 1972.
- National Collection of Fine Arts*. Foldout building guide. Office of Public Affairs. 5 pages. Reprint. August 1972.
- The National Museum of History and Technology*. Foldout building guide. Office of Public Affairs. 8 pages. Reprint. 15 November 1972.
- National Air and Space Museum*. Foldout building guide. Office of Public Affairs. 10 pages. Reprint. 29 September 1972.
- National Portrait Gallery*. Foldout building guide. Office of Public Affairs. 4 pages. Reprint. 19 September 1972.
- Smithsonian Institution*. Foldout guide. Office of Public Affairs. 12 pages. Reprint. 11 May 1973.

## Series Publications

### SMITHSONIAN ANNALS OF FLIGHT

9. Robert C. Mikesch. "Japan's World War II Balloon Bomb Attacks on North America." vi + 85 pages, 90 figures, 7 tables. 9 April 1973.

## SMITHSONIAN CONTRIBUTIONS TO ANTHROPOLOGY

7. (In three parts) Frederica de Laguna. "Under Mount Saint Elias: The History and Culture of the Yakutat Tlingit." i + 1395 pages, 218 plates, 74 figures, 26 maps, musical scores of 116 songs. 13 November 1972.

## SMITHSONIAN CONTRIBUTIONS TO ASTROPHYSICS

14. A.F. Cook. "Discrete Levels of Beginning Height of Meteors in Streams." ii + 10 pages, 17 figures, 2 tables. 31 January 1973.
15. A.F. Cook, B.-A. Lindblad, B.G. Marsden, R.E. McCrosky, and A. Posen. "Yet Another Stream Search Among 2401 Photographic Meteors." ii + 5 pages, 5 tables. 31 January 1973.

## SMITHSONIAN CONTRIBUTIONS TO BOTANY

6. Wallace R. Ernst. "Floral Morphology and Systematics of *Lamourouxia* (Scrophulariaceae: Rhinanthoideae)." iii + 63 pages, 36 figures, 1 table. 21 July 1972.
9. F.A. McClure. "Genera of Bamboos Native to the New World (Gramineae: Bambusoideae)." Edited by Thomas R. Soderstrom. xii + 148 pages, 48 figures, 1 plate. 11 May 1973.
10. Mason E. Hale, Jr. "Fine Structure of the Cortex in the Lichen Family Parmeliaceae Viewed with the Scanning-electron Microscope." iii + 92 pages, 150 figures. 5 March 1973.
11. Cleofé E. Calderón and Thomas R. Soderstrom. "Morphological and Anatomical Considerations of the Grass Subfamily Bambusoideae Based on the New Genus *Maclurolyra*." iii + 55 pages, 24 figures. 26 March 1973.

## SMITHSONIAN CONTRIBUTIONS TO THE EARTH SCIENCES

9. William G. Melson, editor. "Mineral Sciences Investigations, 1969-1971." iii + 94 pages, 33 figures, 35 tables. 16 August 1972.

## SMITHSONIAN CONTRIBUTIONS TO PALEOBIOLOGY

12. Richard H. Benson. "The *Bradleya* Problem, With Descriptions of Two New Psychrospheric Ostracode Genera, *Agrenocythere* and *Poseidonamicus* (Ostracoda: Crustacea)." iv + 138 pages, 66 figures, 14 plates, 4 tables. 30 October 1972.
14. G. Arthur Cooper and Richard E. Grant. "Permian Brachiopods of West Texas, I." ix + 231 pages, 39 figures, 23 plates. 29 December 1972.
16. G. Arthur Cooper. "New Brachiopoda from the Indian Ocean." ii + 43 pages, 1 figure, 8 plates. 14 February 1973.
17. G. Arthur Cooper. "*Vema's* Brachiopoda (Recent)." iv + 51 pages, 5 figures, 9 plates. 23 February 1973.

## SMITHSONIAN CONTRIBUTIONS TO ZOOLOGY

97. Richard Edward Young. "The Systematics and Areal Distribution of Pelagic Cephalopods from the Seas off Southern California." iii + 159 pages, 15 figures, 38 plates, 26 tables. 18 September 1972.

121. Clyde F.E. Roper and Walter L. Brundage, Jr. "Cirrate Octopods with Associated Deep-Sea Organisms: New Biological Data Based on Deep Benthic Photographs (Cephalopoda)." iii + 46 pages, 53 figures, 3 tables. 26 July 1972.
124. J. Laurens Barnard. "A Review of the Family Synopiidae (= Tironidae), Mainly Distributed in the Deep Sea (Crustacea: Amphipoda)." iv + 94 pages, 46 figures. 30 August 1972.
125. George M. McKay. "Behavior and Ecology of the Asiatic Elephant in Southeastern Ceylon." iv + 113 pages, 63 figures, 25 tables. 23 April 1973.
126. Maureen E. Downey. "Starfishes from the Caribbean and the Gulf of Mexico." vi + 158 pages, 2 figures, 48 plates, 1 table. 23 April 1973.
128. Allan Watson. "An Illustrated Catalog of the Neotropic Arctiinae Types in the United States National Museum (Lepidoptera: Arctiidae), Part II." iii + 160 pages, 106 plates. 9 April 1973.
129. Joseph C. Britton, Jr. "Two New Species and a New Subgenus of Lucinidae (Mollusca: Bivalvia), with Notes on Certain Aspects of Lucinid Phylogeny." ii + 19 pages, 6 figures, 3 tables. 15 November 1972.
130. Victor G. Springer. "Synopsis of the Tribe Omobranchini with Descriptions of Three New Genera and Two New Species (Pisces: Blenniidae)." ii + 31 pages, 16 figures, 6 tables. 29 November 1972.
131. Fenner A. Chace, Jr., and Raymond B. Manning. "Two New Caridean Shrimps, One Representing a New Family, from Marine Pools on Ascension Island (Crustacea: Decapoda: Natantia)." ii + 18 pages, 11 figures. 15 November 1972.
132. Mary E. Rice. "Morphology, Behavior, and Histogenesis of the Pelagosphera Larva of *Phascolosoma agassizii* (Sipuncula)." iii + 51 pages, 14 plates. 12 January 1973.
133. J. Laurens Barnard. "Deep-sea Amphipoda of the Genus *Lepechinella* (Crustacea)." iii + 31 pages, 12 figures. 23 February 1973.
134. Victor G. Springer. "Additions to Revisions of the Blennioid Fish Genera *Ecsenius* and *Entomacrodus*, with Descriptions of Three New Species of *Ecsenius*." iii + 13 pages, 3 figures, 4 tables. 25 October 1972.
135. Roman Kenk. "Freshwater Triclad (Turbellaria) of North America, V: The Genus *Polycelis*." iii + 15 pages, 9 figures. 10 January 1973.
136. Thomas E. Bowman. "Pelagic Amphipods of the Genus *Hyperia* and Closely Related Genera (Hyperidea: Hyperiidae)." ii + 76 pages, 52 figures, 1 table. 9 March 1973.
137. W. D. Hope and D. G. Murphy. "A Taxonomic Hierarchy and Checklist of the Genera and Higher Taxa of Marine Nematodes." iii + 101 pages. 29 December 1972.
138. Roman Kenk. "Freshwater Triclad (Turbellaria) of North America, VI: The Genus *Dendrocoelopsis*." iii + 16 pages, 12 figures. 12 January 1973.
140. Terry L. Erwin. "Studies of the Subtribe Tachyina (Coleoptera: Carabidae: Bembidiini), Part I: A Revision of the Neotropical Genus *Xystosomus* Schaum." ii + 39 pages. 30 May 1973.
141. I. G. Sohn and Louis S. Kornicker. "Morphology of *Cypretta kawatai* Sohn and Kornicker, 1972 (Crustacea, Ostracoda), with a Discussion of the Genus." ii + 28 pages, 18 figures. 7 May 1973.
142. Perry C. Holt. "A Summary of the Branchiobdellid (Annelida: Clitellata) Fauna of Mesoamerica." iii + 40 pages, 19 figures, 19 June 1973.
144. Edwin O. Willis. "The Behavior of Ocellated Antbirds." iii + 57 pages, 25 figures. 7 May 1973.



147. W. Donald Duckworth. "The Old World Stenomidae: A Preliminary Survey of the Fauna, Notes on Relationships, and Revision of the Genus *Eriogenes* (Lepidoptera: Gelechioidea)." ii + 21 pages, 9 figures, 7 maps. 4 June 1973.
148. W. Donald Duckworth and Thomas D. Eichlin. "The Type-Material of North American Clearwing Moths (Lepidoptera: Sesiidae)." ii + 34 pages. 19 June 1973.

## SMITHSONIAN STUDIES IN HISTORY AND TECHNOLOGY

11. Berkeley R. Lewis. "Small Arms Ammunition at the International Exposition Philadelphia, 1876." iii + 68 pages, 76 figures, 45 plates. 11 August 1972.
14. Anne Marie Serio. "Political Cartoons in the 1848 Election Campaign." ii + 21 pages, 10 figures. 18 October 1972.
15. John N. Hoffman. "Girard Estate Coal Lands in Pennsylvania 1801-1884." vi + 86 pages, 39 figures. 29 December 1972.
17. John T. Schlebecker. "Agricultural Implements and Machines in the Collection of the National Museum of History and Technology." iii + 58 pages, 34 figures. 18 August 1972.
18. Anne Castrodale Golovin. "Bridgeport's Gothic Ornament: The Harral-Wheeler House." iv + 27 pages, 21 figures. 18 October 1972.
19. Robert E. Eliason. "Keyed Bugles in the United States." 44 pages, 22 figures. 29 November 1972.
20. John J. McCusker. "*Alfred*, the First Continental Flagship, 1775-1778." iv + 19 pages, 14 figures. 25 June 1973.

## ATOLL RESEARCH BULLETIN

- 151-162. In one volume, as follows. 31 December 1972.
151. Louis H. DiSalvo. "Bacterial Counts in Surface Open Waters of Eniwetok Atoll, Marshall Islands." 6 pages, 1 figure.
152. Gerald J. Bakus, editor. "Marine Studies on the North Coast of Jamaica." 7 pages.
153. Michael J. Risk. "Fish Diversity on a Coral Reef in the Virgin Islands." 7 pages.
154. William A. Bussing. "Recolonization of a Population of Supratidal Fishes at Eniwetok Atoll, Marshall Islands." 8 pages.
155. Roy T. Tsuda. "Some Marine Benthic Algae from Truk and Kuop, Caroline Islands." 12 pages, 1 figure.
156. Roy T. Tsuda and Mary S. Belk. "Additional Records of Marine Benthic Algae from Yap, Western Caroline Islands." 6 pages.
157. Jon N. Weber and Peter M. J. Woodhead. "Carbonate Lagoon and Beach Sediments of Tarawa Atoll, Gilbert Islands." 31 pages, 9 figures.
158. R. Pocklington, P.R. Willis, and M. Palmieri. "Birds Seen at Sea and on an Island in the Cargados Carajos Shoals." 9 pages.
159. R. Battistini and G. Cremers. "Geomorphology and Vegetation of Iles Glorieuses." 27 pages, 7 figures, 19 plates.
160. D.R. Stoddart. "Reef Islands of Rarotonga." F.R. Fosberg. "List of Vascular Plants." 15 pages, 6 figures, 4 plates.
161. D. R. Stoddart and F.R. Fosberg. "South Indian Sand Cays." 25 pages, 8 figures.

162. "Island News and Comment." 27 pages.  
 163-164. In one volume, as follows. 31 December 1972.  
 163. Robert B. Clapp. "The Natural History of Gardner Pinnacles, Northwestern Hawaiian Islands." 33 pages, 7 figures.  
 164. Paul W. Woodward. "The Natural History of Kure Atoll, Northwestern Hawaiian Islands." 339 pages, 62 figures.  
 165. A.J. Peters and J.F.G. Lionnet. "Central Western Indian Ocean Bibliography." 328 pages, 3 figures. 2 May 1973.

### Institutional Publications

- Annual Report of the American Historical Association for the Year 1971. Volume I: "Proceedings."* xvi + 192 pages. 1 March 1973. Paper: \$1.75.  
*Annual Report of the American Historical Association for the Year 1962. Volume II: "Writings on American History, 1960."* xvi + 962 pages. 5 July 1972. Cloth: \$5.25.  
*1971 Annual Report, National Zoological Park, Smithsonian Institution, July 1, 1970 through June 30, 1971.* v + 42 pages, 1 illustration. 19 January 1973.  
*Smithsonian Year 1972. Annual Report of the Smithsonian Institution for the Year Ended 30 June 1972.* vi + 266 pages, 22 illustrations. 24 January 1973. Paper: \$2.00.  
*Smithsonian International Exchange Service, 1972 Annual Report.* 9 pages. May 1973.  
*Statement by the Secretary. The Smithsonian Institution, 1972.* "The Pleasure of Your Company," and "Financial Report." iii + 50 pages. 22 December 1972.

# Appendix 10

## SMITHSONIAN EXHIBITS

### National Museum of History and Technology

#### PERMANENT EXHIBITIONS

Philately and Postal History	Photography Hall
Character of the West (Everyday Life)	News Reporting
Graphic Arts Hall	

#### SPECIAL EXHIBITIONS

Mutoscopes	Works by Chaim Goldberg (Graphic Arts Hall)
Right to Vote	
Productivity	Copernicus Exhibit
New Zealand Stamp	Gillette Shaving Exhibit

### National Museum of Natural History

#### SPECIAL EXHIBITIONS

Tropical Blossoms	Stone Age Hunter
Butterflies	Yavitz Sculpture
Masterpieces of Eskimo Carving	Indonesian Photos
Magnificent West	Spanish Inquisition Necklace
Synthetic Crystals	Great Hall Case
Insect Zoo	Alaskan Jade Carvings

### National Zoological Park

The Waterfowl Exhibit

### National Air and Space Museum

Air Force Art	Space Shuttle Development
Flying Tigers	Apollo 17 Preflight
Army Art	Skylab Program
Aerobatics	Copernicus Satellite Telescope
Exhibition Flight pre-exhibit	Bonestell Space Art
Improved <i>Wright Military Flyer</i> , <i>Kitty Hawk Flyer</i> , and <i>Spirit of St. Louis</i> exhibits in North Hall	Louis-Marie Jullien Tapestry



## Anacostia Neighborhood Museum

Evolution of a Community, Part II

D. C. Art Association Fourth Exhibit

### National Collection of Fine Arts

Artist-Naturalists: Observations in the Americas

The Way of Good and Evil: Popular Religious Lithographs of 19th Century America

The Hand and The Spirit: The Religious Impulse in American Art 1700–1900

Countryside/Inner City: Photography by Roland Freeman, Jeff Weiss and Their Students

New Prints from the Discover Graphics Project

Solon H. Borglum

GSA Design Awards Program

Recent Accessions (Prints)

Wonder Productions Volume I: The Evolution of a Book by Ellen Lanyon

NCFA Collection (Contemporary)

Johann Hermann Carmiencke  
From Within

Alfred H. Maurer

Eighth Dulin Print and Drawing Competition

5 Sense Store: An Aesthetic Design for Education

Graphics '73: Ralston Crawford

Düsseldorf Academy and the Americans

Views of the Earth

High School Graphics III

Three Contemporary Printmakers: Jacob Kainen, Albert Christ-Janer, Tadeusz Lapinski

Lilly Martin Spencer (1833–1902): The Joys of Sentiment

Divergent Representations: Five Contemporary Artists

Five Years Later

### Renwick Gallery

Franz Barwig Sculpture

Announcing the Avant Garde: French Playbills of the 1890's

American Pieced Quilts (SITES)

Brazilian Baroque: Decorative and Religious Objects from the 17th and 18th Centuries

Objects for Preparing Food

Contemporary Indian Paintings

The Design Necessity

American Coverlet

The Arts and Crafts Movement in America, 1876–1918

### Freer Gallery of Art

Eugene and Agnes E. Meyer Memorial Exhibition

Japanese Art—Recent Accessions

Whistler Paintings

American Paintings

Ukiyoe Paintings

## National Portrait Gallery

## SPECIAL EXHIBITIONS

- |  |  |
|--|--|
| <p>The Lazzaroni: Science and Scientists in Mid Nineteenth-Century America</p> <p>Notable Women (from the Gallery's Collection)</p> <p>Portraits by Winold Reiss</p> <p>American Authors (from the Gallery's Collection)</p> <p>Portraits of Figures of the Harlem Renaissance</p> | <p>African-American History Week: Frederick Douglass</p> <p>National Portrait Gallery Recent Acquisitions (2 exhibitions)</p> <p>Prints and Drawings from the Permanent Collection</p> <p>Single Portrait Presentations (17 presentations)</p> |
|--|--|

## Smithsonian Institution Building

## GREAT HALL

- |   |                                |
|---|--------------------------------|
| <p>Textiles in New England</p> <p>The History of the Smithsonian Institution Building</p> | <p>The Joseph Henry Papers</p> |
|---|--------------------------------|

## COMMONS

- |                 |                      |
|-----------------|----------------------|
| <p>Minerals</p> | <p>Patent Models</p> |
|-----------------|----------------------|

## ASSOCIATES RECEPTION ROOM

- |                            |                    |
|----------------------------|--------------------|
| <p>Seashell Collection</p> | <p>Quiltmaking</p> |
|----------------------------|--------------------|

## Smithsonian Institution Traveling Exhibition Service

- |  |  |
|--|--|
| <p>Graphics by Six Swiss Sculptors</p> <p>The Phenomenon of Peter Max (two versions)</p> <p>Molas from the San Blas Islands (two versions)</p> <p>Man in Sport (two versions)</p> <p>African Arts</p> <p>The Monotype: An Edition of One</p> <p>Education of an Architect</p> <p>The Avant-Garde in Theatre &amp; Art</p> <p>The Laing Stores: Dismantling a Landmark</p> <p>Photographs of a New Guinea People</p> <p>Meteorological Optics</p> <p>Prehistoric Rock Art of Spain</p> <p>The American Artist &amp; Water Reclamation</p> <p>The Design Necessity</p> | <p>German Posters of Today</p> <p>Guajiro Tapestries</p> <p>Modern Housing Prototypes</p> <p>Landfall Press</p> <p>Makonde Sculpture</p> <p>The Persistent Crafts of Poland</p> <p>Samit</p> <p>The Simple Home: Domestic Architecture in the San Francisco Bay Region</p> <p>Eskimo Art</p> <p>Alexey Brodovitch and His Influence</p> <p>American Pieced Quilts (two versions)</p> <p>London &amp; Birmingham Railway Drawings</p> <p>The Nag Hammadi Codices</p> <p>The Magnificent West</p> <p>Mississippi Folk Architecture</p> |
|--|--|

## Appendix 11

### PROGRESS ON BUILDING CONSTRUCTION, RESTORATION, AND RENOVATION

**AIR AND SPACE BUILDING.** Construction of the planetarium exhibit was completed.

**ARTS AND INDUSTRIES BUILDING.** A contract was completed for the west-north range mezzanine and lower level and a contract was awarded and completed on the east-south and west-south ranges. A contract was awarded for the installation of public and employee restrooms in the southwest pavillion annex and construction was completed of an employee restroom in the west-north range. A fire protection system for the computer room was designed and the contract awarded for installation. Architectural exterior lighting was completed. Design work is in progress for the major restoration and air conditioning, and it is expected that the contract for construction will be awarded in the summer of 1973.

**FINE ARTS AND PORTRAIT GALLERIES.** A contract was awarded and construction is underway on the air-conditioning system for the first floor of the Seventh Street wing. Preparation of design work is underway for alteration of the National Portrait Gallery's area on the third floor. A study of architectural exterior lighting is being made by a lighting consultant. The offices of the Director of the National Portrait Gallery were renovated. Plans are being developed for a public and staff luncheon/snack facility on the first floor.

**FREER GALLERY OF ART.** Architectural exterior lighting was completed. The design of an X-ray facility for the research and conservation activity was completed and construction work will be undertaken in the summer of 1973. A project was undertaken to install ultraviolet shielding in the skylights to aid in the preservation and conservation of gallery collections.

**HIRSHHORN MUSEUM AND SCULPTURE GARDEN.** Construction continues to move forward and major furnishings and equipment are being purchased.

**HISTORY AND TECHNOLOGY BUILDING.** A review of existing exterior lighting is underway. The Library and Reading Room on the fifth floor was renovated. A contract was awarded for the design of a new addition to the Library on the sixth floor. Work is underway to correct water penetration on the fifth floor and the north terrace. The sanitary sewer project was completed.

**NATIONAL AIR AND SPACE MUSEUM.** Construction was started on the new building and presently is on schedule. It is expected that the building will be open to the public for the Bicentennial of the American Revolution.

**NATIONAL ZOOLOGICAL PARK.** The Animal Research Building, completed as part of the Hospital-Research Complex, will be used initially for a Golden Marmoset conservation project. The Giant Panda House, remodeling Phase II, including exterior Panda Gardens was substantially completed in accordance with approved Master Plan requirements. The old "camel line" was remodeled into a Black Rhinoceros exhibit. Parking lots were modified to permit the inauguration



of paid parking. Repairs to the Bird House roof were completed. Working drawings and specifications were completed for remodeling the Monkey and Puma Houses. Working drawings were initiated for the new Lion and Tiger exhibit facility which will replace the outdated Lion House. Three new corncrib cages were erected for predatory birds, two corncrib cages were relocated to accommodate animals displaced by remodeling plans, and additional corncrib cage designs are underway. Significant landscape rehabilitation was achieved at the Connecticut Avenue and Adams Mill Road entrances. The upgrading of the landscape throughout the Zoo, to achieve the aims of the Master Plan, is a continuing objective.

**NATURAL HISTORY BUILDING.** New office space and a mezzanine in the north pavillion were completed. Construction of new storage space is underway in the west range. A design contract for architectural exterior lighting was awarded. The first phase of the Smithsonian Institution Libraries' expansion was completed and design work is proceeding for the second phase.

**RENWICK GALLERY** A contract was awarded for installation of railings on the towers, replacement and repair of roofs, and installation of lightning protection.

**SILVER HILL FACILITY.** Construction of Building 23 (Ramsey Building) was completed. The design was completed for Building 24 and early construction is anticipated. The sewer project was completed.

**SMITHSONIAN INSTITUTION BUILDING.** The architectural exterior lighting was completed. A contract for the design of a humidification system was awarded and the installation contract will be awarded in July 1973.

## Appendix 12

### VISITORS TO THE SMITHSONIAN INSTITUTION DURING FISCAL YEAR 1973

<i>Month</i>	<i>Smithsonian Institution Building</i>	<i>Arts &amp; Industries Building</i>	<i>Natural History Building</i>	<i>Air &amp; Space Building</i>	<i>Freer Gallery of Art</i>	<i>History &amp; Technolog Building</i>
July	117,031	342,138	399,521	22,892	26,280	983,78
August	118,598	356,244	357,766	220,933	23,829	902,57
September	48,575	128,924	132,389	73,684	13,342	327,98
October	49,358	123,840	172,341	71,303	14,095	423,67
November	45,324	108,900	205,347	60,525	10,950	422,98
December	31,366	88,176	152,072	49,210	9,913	341,21
January	33,392	77,975	135,494	45,989	11,115	273,25
February	38,356	106,058	171,125	65,633	12,223	310,17
March	61,124	143,528	271,507	97,823	16,106	467,23
April	104,576	316,397	479,848	180,955	22,973	1,023,69
May	73,742	234,927	473,544	139,902	22,617	839,77
June	85,725	258,369	354,882	194,952	21,280	585,04
Totals	807,167	2,285,476	3,305,836	1,223,808	204,723	6,901,38

<i>Month</i>	<i>Fine Arts &amp; Portrait Galleries</i>	<i>Renwick Gallery</i>	<i>National Zoological Park</i>	<i>Anacostia Neighborhood Museum</i>	<i>Totals</i>
July	18,033	12,010	775,733	2,249	2,699,670
August	20,638	11,389	762,869	2,304	2,777,143
September	14,876	9,674	385,885	3,274	1,138,604
October	23,455	15,964	427,884	4,602	1,326,520
November	18,990	15,798	406,178	6,367	1,301,362
December	16,502	13,491	98,150	7,459	807,554
January	17,503	13,795	166,317	3,032	777,868
February	23,721	18,137	324,106	8,146	1,077,682
March	27,165	19,705	463,262	11,559	1,579,011
April	24,291	13,616	888,992	5,313	3,060,653
May	26,751	9,667	845,880	5,900	2,672,701
June	22,071	12,600	662,542	4,282	2,201,745
Totals	253,996	165,846	6,207,798	<sup>1</sup> 64,487	<sup>2</sup> 21,420,513

<sup>1</sup> 46,117 adults and children visited museum; the mobile unit was viewed by 18,370 children at their schools.

<sup>2</sup> This total does not include over 4,000,000 persons who visited the Smithsonian Institution Traveling Exhibition Service's displays in museums and educational institutions throughout the United States and Canada.

## Appendix 13

### STAFF OF THE SMITHSONIAN INSTITUTION 30 JUNE 1973

#### Secretary's Office and Related Activities

The Secretary.....	S. Dillon Ripley
Executive Assistant.....	Dorothy Rosenberg
Under Secretary.....	Robert A. Brooks
Administrative Officer.....	John Motheral
Director of Support Activities.....	Richard L. Ault
Director, Office of Audits.....	Chris S. Peratino
Assistant Secretary for Science.....	David Challinor
Assistant Secretary for History and Art...	Charles Blitzer
Assistant Secretary for Public Service (Acting).....	Julian Euell <sup>1</sup>
Assistant Secretary for Museum Programs (Director, United States National Museum).....	Paul N. Perrot
Treasurer.....	T. Ames Wheeler
Assistant Treasurer.....	Betty J. Morgan
Director, Office of Programming and Budget.....	John F. Jameson
Chief Accountant.....	Allen S. Goff
Business Manager.....	Richard Griesel
Director, Smithsonian Museum Shops.	William W. Rowan, III
Director, Belmont Conference Center..	Joanne S. Baker Kugel
General Counsel.....	Peter G. Powers
Assistant General Counsels.....	Alan D. Ullberg George S. Robinson L. Wardlaw Hamilton Suzanne D. Murphy Marie C. Malaro
Special Projects, Office of the Secretary	
Special Assistant to the Secretary.....	Richard H. Howland
Special Assistant to the Secretary.....	Margaret Gaynor
Director, Office of Development.....	Lynford E. Kautz
Editor, Joseph Henry Papers.....	Nathan Reingold
Director, Office of Equal Opportunity.	Archie D. Grimmatt
Curator, Smithsonian Institution	
Building.....	James M. Goode

<sup>1</sup> William W. Warner on sabbatical leave.



Honorary Research Associates . . . . .	Charles G. Abbot, Secretary Emeritus Leonard Carmichael, Secretary Emeritus Paul H. Oehser Alexander Wetmore, Secretary Emeritus
Honorary Fellow . . . . .	John A. Graf

## SCIENCE

Assistant Secretary . . . . .	David Challinor
Special Assistants . . . . .	Michael R. Huxley Harold J. Michaelson

## National Museum of Natural History

Director . . . . .	Porter M. Kier <sup>2</sup>
Assistant Director . . . . .	James F. Mello <sup>2</sup>
Special Assistant to Director . . . . .	Paul K. Knierim <sup>2</sup>
Chief of Exhibits . . . . .	Harry T. Hart <sup>3</sup>
Administrative Officer . . . . .	John C. Townsend

### ANTHROPOLOGY

Chairman . . . . .	Clifford Evans
Senior Archeologist . . . . .	Waldo R. Wedel
Senior Ethnologists . . . . .	John S. Ewers Saul H. Riesenbergs
Archivist . . . . .	Herman J. Viola <sup>4</sup>
Collections Manager . . . . .	George E. Phebus
<i>Latin American Anthropology</i>	
Curator . . . . .	Clifford Evans
Associate Curators . . . . .	William H. Crocker Robert M. Laughlin
<i>Old World Anthropology</i>	
Curators . . . . .	Gordon D. Gibson Gus W. Van Beek
Associate Curators . . . . .	Eugene I. Knez William B. Trousdale

<sup>2</sup> Effective 14 January 1973.

<sup>3</sup> Appointed 18 March 1973.

<sup>4</sup> Appointed 1 October 1972.

*North American Anthropology*

Curator . . . . .	William C. Sturtevant
Associate Curators . . . . .	William W. Fitzhugh
	Dennis M. Stanford

*Physical Anthropology*

Curator . . . . .	J. Lawrence Angel
Associate Curators . . . . .	Donald J. Ortner
	Lucile E. St. Hoyme
	Douglas H. Ubelaker
Organic Chemist . . . . .	David W. Von Endt

## Research Associates, Collaborators, and

Affiliated Scientists . . . . .	Hans-Georg Bandi (Archeology)
	W. Montague Cobb (Physical Anthropology)
	T. Aidan Cockburn (Physical Anthropology)
	Henry B. Collins (Archeology)
	Wilson Duff (Ethnology)
	Roger I. Eddy (Ethnology)
	Don D. Fowler (Archeology)
	Sister Inez Hilger (Ethnology)
	C. G. Holland (Archeology)
	Neil M. Judd (Archeology)
	Richard T. Koritzer (Physical Anthropology)
	Ralph K. Lewis (Archeology)
	Michael Liebman (Physical Anthropology)
	Olga Linares de Sapir (Archeology)
	Betty J. Meggars (Archeology)
	George S. Metcalf (Archeology)
	Walter G. Putschar (Physical Anthropology)
	Victor A. Nunez Regueiro (Archeology)
	Wilhelm G. Solheim (Archeology)
	T. Dale Stewart (Physical Anthropology)
	Matthew W. Stirling (Archeology)
	Robert Stuckenrath (Archeology)
	Theodore A. Wertime (Archeology)
	Edwin F. Wilmsen (Archeology)

## BOTANY

Chairman . . . . .	Edward S. Ayensu
Senior Botanists . . . . .	Richard S. Cowan <sup>5</sup>
	Conrad V. Morton <sup>6</sup>
	Lyman B. Smith

<sup>5</sup> Effective 14 January 1973.<sup>6</sup> Died 29 July 1972.

*Phanerogams*

Curators.....	F. Raymond Fosberg Velva E. Rudd <sup>7</sup> John J. Wurdack
Associate Curators.....	Dan H. Nicolson Robert W. Read <sup>8</sup> Marie-Hélène Sachet Stanwyn G. Shetler Beryl B. Simpson Dieter C. Wasshausen

*Ferns*

Associate Curator.....	David B. Lellinger
------------------------	--------------------

*Grasses*

Associate Curator.....	Thomas R. Soderstrom
------------------------	----------------------

*Cryptogams*

Curators.....	Mason E. Hale, Jr. Harold E. Robinson
Associate Curator.....	Arthur L. Dahl

*Plant Anatomy*

Curators.....	Edward S. Ayensu Richard H. Eyde
Associate Curator.....	Joan W. Nowicke

## Research Associates, Collaborators, and

Affiliated Scientists <sup>9</sup> .....	W. Andrew Archer (Flowering Plants) <sup>10</sup> John A. Churchill (Flowering Plants) Paul S. Conger (Diatomaceae) José Cuatrecasas (Flora of Tropical South America) James A. Duke (Flora of Panama) Marie L. Farr (Fungi) Aaron Goldberg (Phanerogams) Charles R. Gunn (Seeds) William H. Hathaway (Flora of Central America) Paul L. Lentz (Fungi) Elbert L. Little (Dendrology) Alicia Lourteig (Neotropical Botany) Kittie F. Parker (Compositae) Clyde F. Reed (Ferns) James L. Reveal (Ferns) Marie L. Solt (Melastomataceae) Frans A. Stafleu (Phanerogams) William L. Stern (Plant Anatomy) John A. Stevenson (Fungi) Edward E. Terrell (Phanerogams)
--	---

<sup>7</sup> Retired 13 April 1973.<sup>8</sup> Appointed 4 March 1973.<sup>9</sup> National fungus collections are curated by Department of Agriculture staff.<sup>10</sup> Died 7 May 1973.



Francis A. Uecker (Fungi)  
 Egbert H. Walker (Myrsinaceae,  
 East Asian Flora)

## ENTOMOLOGY

Chairman . . . . . Paul D. Hurd, Jr.  
 Senior Entomologists . . . . . J. F. Gates Clarke  
 Karl V. Krombein

*Neuropteroids*

Curator . . . . . Oliver S. Flint, Jr.  
 Associate Curator . . . . . Richard W. Baumann

*Lepidoptera and Diptera*

Curator . . . . . Donald R. Davis  
 Associate Curators . . . . . W. Donald Duckworth  
 William D. Field

*Coleoptera*

Associate Curators . . . . . Terry L. Erwin  
 Paul J. Spangler

*Hemiptera and Hymenoptera*

Associate Curator . . . . . Richard C. Froeschner

*Myriapoda and Arachnida*

Curator . . . . . Ralph E. Crabill, Jr.

## Research Associates, Collaborators, and

Affiliated Scientists . . . . . Charles P. Alexander (Diptera)  
 W. H. Anderson (Coleoptera)  
 Doris H. Blake (Coleoptera)  
 Franklin S. Blanton (Diptera)  
 Frank L. Campbell (Insect  
 Physiology)  
 Oscar L. Cartwright (Coleoptera)  
 K. C. Emerson (Mallophaga)  
 John G. Franclemont (Lepidoptera)  
 Harry Hoogstraal (Medical  
 Entomology)  
 Frank M. Hull (Diptera)  
 W. L. Jellison (Siphonaptera,  
 Anoplura)  
 Harold F. Loomis (Myriapoda)  
 C. F. W. Muesebeck (Hymenoptera)  
 George W. Rawson (Lepidoptera)  
 Robert Traub (Siphonaptera)  
 David Wooldridge (Coleoptera)

## INVERTEBRATE ZOOLOGY

Chairman . . . . . David L. Pawson  
 Senior Zoologists . . . . . Fenner A. Chace, Jr.  
 Horton H. Hobbs, Jr.  
 Harald A. Rehder

*Crustacea*

Curators.....	J. Laurens Barnard Thomas E. Bowman Roger F. Cressey Louis S. Kornicker Raymond B. Manning
Visiting Curator.....	John R. Holsinger <sup>11</sup>

*Echinoderms*

Curators.....	David L. Pawson Klaus Ruetzler
---------------	-----------------------------------

*Worms*

Curators.....	W. Duane Hope Meredith L. Jones Marian H. Pettibone
Associate Curator.....	Mary E. Rice

*Mollusks*

Curators.....	Clyde F. E. Roper Joseph Rosewater
Associate Curator.....	Joseph P. E. Morrison

Research Associates, Collaborators, and  
Affiliated Scientists .....

Frederick M. Bayer (Echinoderms)  
S. Stillman Berry (Mollusks)  
Janet M. Bradford (Crustacea)  
J. Bruce Bredin (Biology)  
Isabel C. Canet (Biology)  
Maybelle H. Chitwood (Worms)  
Mary Gardiner (Echinoderms)  
John C. Harshbarger (Marine  
Invertebrates)  
Lipke B. Holthuis (Crustacea)  
Roman Kenk (Worms)  
J. Ralph Lichtenfels (Worms)  
Anthony J. Provenzano, Jr.  
(Crustacea)  
Waldo L. Schmitt (Marine  
Invertebrates)  
Frank R. Schwengel (Mollusks)  
I. G. Sohn (Crustacea)  
Donald F. Squires (Echinoderms)  
Gilbert L. Voss (Mollusks)  
Austin B. Williams (Crustacea)  
Mildred S. Wilson (Copepod  
Crustacea)

## MINERAL SCIENCES

Chairman.....	William G. Melson <sup>12</sup>
Mineralogist.....	George S. Switzer
Collections Manager.....	Harold H. Banks, Jr.

<sup>11</sup> Appointed 26 June 1972; terminated 24 June 1973

<sup>12</sup> Effective 19 March 1973.

*Meteorites*

Curators.....	Roy S. Clarke, Jr. Brian H. Mason <sup>13</sup>
Geochemists.....	Kurt Fredriksson Robert F. Fudali

*Mineralogy*

Curator.....	Paul E. Desautels
Crystallographer.....	Joel E. Arem

*Petrology and Volcanology*

Curator.....	William G. Melson
Associate Curator.....	Thomas E. Simkin

*Physical Sciences Laboratory*

Chemists.....	Eugene Jarosewich Joseph A. Nelen
---------------	--------------------------------------

## Research Associates, Collaborators, and

Affiliated Scientists.....	Howard J. Axon (Meteorites) Vagn F. Buchwald (Meteorites) Tomas Feininger (Petrology) John J. Gurney (Petrology) Edward P. Henderson (Meteorites) John B. Jago (Mineralogy) Peter Leavens (Mineralogy) T. R. McGetchin (Petrology) Rosser Reeves (Mineralogy) Geoffrey Thompson (Petrology) Harry Winston (Mineralogy)
----------------------------	--

## PALEOBIOLOGY

Chairman.....	Richard E. Grant
Collections Manager.....	Frederick J. Collier

*Invertebrate Paleontology*

Curators.....	Richard M. Benson Richard S. Boardman Martin A. Buzas Alan H. Cheetham Richard Cifelli Richard E. Grant Erle G. Kauffman
Associate Curator.....	Thomas R. Waller
Geologist.....	Kenneth M. Towe

*Vertebrate Paleontology*

Curators.....	Nicholas Hotton III Clayton E. Ray Robert J. Emry
Associate Curator.....	

*Paleobotany*

Curator.....	Walter H. Adey
Associate Curators.....	Leo J. Hickey Francis M. Hueber

<sup>13</sup> Effective 18 March 1973.



*Sedimentology*

Curator .....	Jack W. Pierce
Geological Oceanographer .....	Daniel J. Stanley
Geologist .....	Ian G. Macintyre
Research Associates, Collaborators, and Affiliated Scientists	
Invertebrate Paleontology .....	Arthur J. Boucot
	Anthony C. Coates
	G. Arthur Cooper
	Raymond Douglass
	J. Thomas Duto
	Robert M. Finks
	C. Lewis Gazin
	Mackenzie Gordon, Jr.
	John M. Hancock
	Joseph E. Hazel
	John W. Huddle
	Ralph W. Imlay
	Jeremy B. C. Jackson
	Harry S. Ladd
	N. Gary Lane
	Kenneth E. Lohman
	Venka V. Macintyre
	Sergius H. Mamay
	James F. Mello
	Robert B. Neuman
	William A. Oliver, Jr.
	Storrs L. Olson
	Axel A. Olsson
	John Pojeta, Jr.
	Norman F. Sohl
	Steven M. Stanley
	Margaret Ruth Todd
	Astrid Witmer
	Wendell P. Woodring
	Ellis P. Yochelson
Paleobotany .....	Patricia J. Adey
	David Child
Sedimentology .....	Gilbert Kelling
	Frederic R. Siegel
Vertebrate Paleontology .....	Douglas Emlong
	Charles A. Reppening
	Frank C. Whitmore, Jr.

## VERTEBRATE ZOOLOGY

Chairman .....	Robert H. Gibbs, Jr. <sup>14</sup>
<i>Fishes</i>	
Curators .....	Robert H. Gibbs, Jr.
	Ernest A. Lachner

---

<sup>14</sup> Effective 1 September 1972.

	Victor G. Springer
	Stanley H. Weitzman
Associate Curator.....	William R. Taylor
<i>Reptiles and Amphibians</i>	
Curator.....	James A. Peters <sup>15</sup>
Associate Curator.....	George R. Zug
<i>Birds</i>	
Curators.....	George E. Watson <sup>14</sup>
	Richard L. Zusi
Associate Curator.....	Paul Slud
<i>Mammals</i>	
Curators.....	Charles O. Handley, Jr.
	Henry W. Setzer
Associate Curator.....	Richard W. Thorington, Jr.
Assistant Curator.....	James G. Mead
Research Associates, Collaborators, and	
Affiliated Scientists.....	John W. Aldrich (Birds)
	Richard C. Banks (Birds)
	William Belton (Birds)
	James E. Böhlke (Fishes)
	Robert L. Brownell, Jr. (Mammals)
	Leonard Carmichael (Psychology,
	Animal Behavior)
	Daniel M. Cohen (Fishes)
	Bruce B. Collette (Fishes)
	George J. Divoky (Birds)
	John F. Eisenberg (Mammals)
	Robert K. Enders (Mammals)
	Herbert Friedmann (Birds)
	Crawford H. Greenewalt (Birds)
	Arthur M. Greenhall (Mammals)
	Lester A. Hart (Mammals)
	Marshall A. Howe (Birds)
	Philip S. Humphrey (Birds)
	George J. Jacobs (Reptiles,
	Amphibians)
	Clyde J. Jones (Mammals)
	E. V. Komarek (Mammals)
	Roxie C. Laybourne (Birds)
	Richard H. Manville (Mammals)
	J. A. J. Meester (Mammals)
	Egardo Mondolfi (Mammals)
	Russell E. Mumford (Mammals)
	John R. Napier (Mammals)
	Storrs L. Olson (Birds)
	Braulio Orejas-Miranda (Reptiles)
	John Paradiso (Mammals)
	William F. Perrin (Mammals)
	Dioscoro S. Rabor (Birds)

<sup>15</sup> Died 18 December 1972.

G. Carleton Ray (Mammals)  
 S. Dillon Ripley (Birds)  
 William Schevill (Mammals)  
 Leonard P. Schultz (Fishes)  
 Sheldon R. Severinghaus (Birds)  
 John S. Weske (Birds)  
 Alexander Wetmore (Birds)  
 Ralph E. Wetzel (Mammals)  
 Don E. Wilson (Mammals)

### National Air and Space Museum

Director.....	Michael Collins
Deputy Director.....	Melvin B. Zisfein
Executive Officer.....	John Whitelaw
Librarian.....	Catherine D. Scott
Assistant Director (Aeronautics).....	Donald S. Lopez
Assistant Director (Astronautics).....	Frederick C. Durant III
Assistant Director (Science and Technology).....	Howard Wolko
Advisory Board.....	S. Dillon Ripley, Chairman (ex-officio)
	Brig. General James L. Collins, USA
	Major General Edward S. Fris, USMC
	Vice Admiral William D. Houser, USN
	Rear Admiral William A. Jenkins, USCG
	Major General John L. Locke, USAF
	Brig. General Gustav Lundquist, FAA
	Willis H. Shapley, NASA
Honorary.....	Mrs. Olive Ann Beach
	Lt. General William E. Hall, USAF (Ret.)
	Edwood R. Quesada

### Astrophysical Observatory

Director.....	Fred L. Whipple <sup>16</sup>
Assistant Director (Administration).....	John G. Gregory
Assistant Director (Science).....	Charles A. Lundquist
Scientific Staff.....	Kaare Aksnes
	Arthur C. Allison
	Eugene H. Avrett
	Prabhu Bhatnagar

<sup>16</sup> Retired effective 30 June 1973.



Nathaniel P. Carleton  
Frederic Chaffee  
Jerome R. Cherniack  
Giuseppe Colombo  
Allan F. Cook  
Alex Dalgarno  
Robert J. Davis  
James C. DeFelice  
William A. Deutschman  
Dale F. Dickinson  
Giovanni G. Fazio  
Darrell Fernald  
Edward L. Fireman  
Fred A. Franklin  
Edward M. Gaposchkin  
Owen Gingerich  
Antanas Girnius  
Jonathan E. Grindlay  
Mario D. Grossi  
Marie E. Hallam  
Katherine Haramundanis  
Gerald Hawkins  
Henry F. Helmken  
Paul W. Hodge  
Luigi G. Jacchia  
Wolfgang Kalkofen  
Douglas Kleinmann  
Yoshihide Kozai  
Robert L. Kurucz  
David Latham  
Myron Lecar  
Carlton G. Lehr  
Martin Levine  
Hiram Levy II  
A. Edward Lilley  
Marvin Litvak  
Richard E. McCrosky  
Brian G. Marsden  
Ursula B. Marvin  
George H. Megrue  
Donald H. Menzel  
Lawrence W. Mertz  
Henri E. Mitler  
Paul A. Mohr  
James Moran  
Robert W. Noyes  
Costas Papaliolios  
Cecelia H. Payne-Gaposhkin  
Michael R. Pearlman  
Douglas T. Pitman  
Annette Posen  
Harrison E. Radford

	George B. Rybicki
	Winfield W. Salisbury
	Rudolph E. Schild
	Zdenek Sekanina
	Chen-Yuan Shao
	I. Shapiro
	Jack W. Slowey
	Richard B. Southworth
	Frank Steinbrunn
	G. Jeffrey Taylor
	Wesley A. Traub
	Robert Vessot
	George Victor
	George Weiffenbach
	Trevor C. Weekes
	Charles A. Whitney
	Marlene Williamson
	John A. Wood
Consultants.....	John Danziger
	Peter Noerdlinger
	Jan Rolff
	Stanley Ross
	Robert Stein
	Wallace Tucker
	George Veis
Director, Central Bureau for Satellite Geodesy.....	George Veis
Director, Central Bureau for Astronomical Telegrams.....	Brian G. Marsden
NAS Fellows.....	Eoghan O'Mongain
	Steven Wofsy
	Eric Chaisson

### Smithsonian Tropical Research Institute

Director.....	Martin H. Moynihan
Special Assistant to Director.....	Adela Gomez
Assistant Director, Science.....	Ira Rubinoff
Administrative Officer.....	C. Neal McKinney
Manager, Barro Colorado Island.....	Ernest Hayden
Manager, Naos Island.....	Thomas Borges
Office Manager.....	Arilla Kourany
Librarian.....	Alcira Mejía
Biologists.....	Robert L. Dressler
	Peter W. Glynn
	Jeffrey B. Graham
	Judith Lang
	Egbert Leigh
	David L. Meyer
	A. Stanley Rand

	Michael H. Robinson
	Roberta W. Rubinoff
	Neal G. Smith
	Nicholas Smythe
	Hindrik Wolda
Honorary.....	Madeline Andrews
	Charles F. Bennett, Jr.
	John F. Eisenberg
	Carmen Glynn
	Carlos Lehmann
	Giles W. Mead
	Ernst Mayr
	Barbara Robinson
	Patricio Sánchez
	W. John Smith
	C. C. Soper
	Paulo Vanzolini
	Martin Young

Radiation Biology Laboratory

Director.....	William H. Klein
Assistant Director.....	W. Shropshire, Jr.
Anthropologist.....	Robert Stuckenrath
Biochemists.....	David L. Correll
	Maurice M. Margulies
Biologists.....	Elisabeth Gantt
	Rebecca Hayes
	Allan Michaels
Chemist.....	David Severn
Fisheries Biologist.....	Joseph Miklas
Geneticist.....	Roy W. Harding, Jr.
Geochemist.....	James Mielke
Microbiologist.....	Maria Faust
	Brian Gray
Physicists.....	Bernard Goldberg
Physiological Ecologist.....	Bert Drake
	William O. Smith, Jr.
	John L. Edwards
	Michael Read
	Robert L. Weintraub
Fellow.....	Edward DeFabo

National Zoological Park

Director.....	Theodore H. Reed
Deputy Director.....	Edward Kohn
Assistant Director for Conservation.....	John Perry
Administrative Officer.....	Joseph J. McGarry



Staff Architect.....	Norman C. Melun
Chief, Office of Interpretation.....	Saul Schiffman
Captain, Protective Services.....	Anthony S. Kadlubowski
General Curator, Office of Animal Management.....	Jaren G. Horsley
Curator, Small Mammals.....	Harold J. Egoscue
Assistant Curator.....	Larry R. Collins
Curator, Large Mammals.....	William A. Xanten, Jr.
Assistant Curator.....	Miles Roberts
Curator, Birds.....	Guy A. Greenwell
Curator, Reptiles.....	Jaren G. Horsley
Assistant Curator.....	Michael L. Davenport
Scientist-in-Charge, Office of Scientific Research.....	John F. Eisenberg
Veterinarian, Office of Animal Health and Pathology.....	Clinton W. Gray
Pathologist, Office of Animal Health and Pathology.....	Robert M. Sauer
Chief, Office of Buildings and Grounds..	Emanuel Petrella
Head, Maintenance Unit.....	Robert F. Ogilvie
Head, Grounds Unit.....	John W. Monday
Head, Services Unit.....	Carl F. Jackson
Head, Transportation Unit.....	Jesse B. Batts
Associates in Ecology.....	S. Dillon Ripley
	Lee M. Talbot
Research Associates.....	Jean Delacour
	Bernard C. Zook
Collaborators.....	Leonard J. Goss
	Carlton M. Herman
	Paul Leyhausen
	Charles R. Schroeder

### Office of Environmental Sciences

Director.....	William L. Eilers
Program Director, AID Environmental Impact Studies.....	Peter H. Freeman
Program Director, AID Waterborne Diseases Study.....	Curt R. Schneider
Ecology Program	
Director.....	Dale W. Jenkins
Deputy Director.....	Lee M. Talbot <sup>17</sup>
Director, Center for Natural Areas....	Stephen L. Keiley
Director, Peace Corps Environmental Studies.....	Robert K. Poole
Director, Environmental Inventories Study.....	William C. Jolly
Oceanography and Limnology Program	
Director.....	Robert P. Higgins

<sup>17</sup> On leave in 1972 to Council on Environmental Quality.

Deputy Director.....	David K. Young
Estuarine Biologist.....	Catherine J. Kerby
Director, Smithsonian Oceanographic Sorting Center.....	H. Adair Fehlmann
Director, Mediterranean Marine Sorting Center.....	Ernani G. Menez <sup>18</sup>
Center for Short-Lived Phenomena Director.....	Robert A. Citron
Chesapeake Bay Center for Environmental Studies	

Director.....	Francis S. L. Williamson
Assistant Director.....	John Kevin Sullivan

Center for the Study of Man

Director.....	Sol Tax
Program Coordinator.....	Sam Stanley

Smithsonian Science Information Exchange, Incorporated

President.....	David F. Hersey
Vice President, User Services.....	Frank J. Kreysa
Director, User Education.....	Richard C. Reeser
Vice President, Professional Services.....	Willis R. Foster
Vice President, Data Processing.....	Martin Snyderman
Secretary.....	V. P. Verfuert
Treasurer.....	David W. Lakamp
Assistant Treasurer.....	Evelyn M. Roll
Science Division	
Director.....	Willis R. Foster
Deputy, Life Sciences.....	Charlotte M. Damron
Chief, Medical Sciences Branch.....	Faith F. Stephan
Chief, Behavioral Sciences Branch...	Rhoda Stolper
Chief, Social Sciences Branch.....	Barbara F. Lundquist
Chief, Agriculture Sciences Branch..	William T. Carlson
Chief, Biological Sciences Branch...	James R. Wheatley, Jr.
Deputy, Physical Sciences.....	Samuel Liebman
Chief, Chemistry, Material and Engineering Branch.....	Samuel Liebman
Chief, Physics, Mathematics and Electronics Branch.....	Robert Summers
Chief, Earth Science Branch.....	Joseph P. Riva, Jr.
Data Processing Division	
Director.....	Martin Snyderman
Deputy.....	Bernard L. Hunt
Chief, Input Services Branch.....	Jack DeVore

<sup>18</sup> Appointed effective April 1973. William P. Davis completed his tour of duty March 1973.

Chief, Systems Development Branch. Bernard L. Hunt  
 Chief, Programming and Reports  
     Services Branch . . . . . Robert A. Kline  
 Chief, Computer Operations Branch. Paul Gallucci

### Fort Pierce Bureau

Acting Director . . . . . H. Adair Fehlmann

## HISTORY AND ART

Assistant Secretary . . . . . Charles Blitzer  
 Deputy . . . . . Richard Grove  
 Bicentennial Coordinator . . . . . Susan Hamilton

### The National Museum of History and Technology

Director . . . . . Daniel J. Boorstin  
 Deputy Director . . . . . Silvio A. Bedini  
 Assistant Director for Administration . . . . . Robert G. Tillotson  
 Historian . . . . . Harold K. Skramstad  
 Registrar . . . . . Virginia Beets

#### APPLIED ARTS

Chairman . . . . . Carl H. Scheele  
*Graphic Arts*  
 Associate Curators . . . . . Elizabeth M. Harris  
     Peter C. Marzio

#### *Numismatics*

Curators . . . . . Vladimir Clain-Stefanelli  
     Elvira Clain-Stefanelli

#### *Photographic History*

Curator . . . . . Eugene Ostroff  
 Assistant Curator . . . . . David E. Haberstich

#### *Postal History*

Curator . . . . . Carl H. Scheele  
 Associate Curators . . . . . Franklin R. Bruns  
     Reidar Norby

#### *Textiles*

Curators . . . . . Rita J. Adrosko  
     Grace R. Cooper

#### Honorary

Numismatics . . . . . Cora Lee C. Gilliland  
     R. Henry Norweb  
     Emery May Norweb



## CULTURAL HISTORY

Chairman (acting).....	Rodris Roth
Senior Curator.....	C. Malcolm Watkins
<i>Costume and Furnishings</i>	
Curator.....	Rodris Roth
Assistant Curator.....	Claudia B. Kidwell
Curator Emeritus.....	Anne W. Murray
<i>Ethnic and Western Cultural History</i>	
Curator.....	Richard E. Ahlborn
<i>Musical Instruments</i>	
Curator.....	John T. Fesperman
Associate Curator.....	Cynthia A. Hoover
Assistant Curator.....	James M. Weaver
<i>Preindustrial Cultural History</i>	
Associate Curator.....	Anne C. Golovin
Honorary	
Musical Instruments.....	David W. Hinshaw
Preindustrial Cultural History.....	Ivor Noël-Hume Robert H. McNulty Joan Pearson Watkins

## INDUSTRIES

Chairman.....	John H. White, Jr.
Historian Emeritus.....	Howard I. Chapelle
<i>Agriculture and Mining</i>	
Curator.....	John T. Schlebeckér
Associate Curator.....	John N. Hoffman
<i>Ceramics and Glass</i>	
Curators.....	J. Jefferson Miller, II Paul V. Gardner
<i>Manufacturing</i>	
Assistant Curator.....	George T. Sharrer
<i>Transportation</i>	
Curators.....	John H. White, Jr. Melvin H. Jackson
Honorary	
Ceramics and Glass.....	Hans Syz
Manufacturing.....	Philip W. Bishop
Transportation.....	Peter B. Bell

## NATIONAL AND MILITARY HISTORY

Chairman.....	Edgar M. Howell
<i>Historic Archeology</i>	
Curator.....	Mendel L. Peterson
<i>Military History</i>	
Curators.....	Edgar M. Howell Craddock R. Goins, Jr.
Assistant Curator.....	Donald E. Kloster
<i>Naval History</i>	
Curators.....	Philip K. Lundeborg Harold D. Langley

*Political History*

Curator.....	Margaret B. Klapthor
Associate Curator .....	Herbert R. Collins

*Honorary*

Naval History.....	William Rea Furlong
--------------------	---------------------

## SCIENCE AND TECHNOLOGY

Chairman.....	Robert M. Vogel
Senior Scientific Scholar.....	Robert P. Multhauf
Historian (Pharmacy).....	Sami K. Hamarneh
Principal Investigator (Computer History Project).....	Henry S. Tropp

*Electricity and Nuclear Energy*

Curator.....	Bernard S. Finn
Curator (Mathematics).....	Uta C. Merzbach
Associate Curator.....	Paul Forman

*Mechanical and Civil Engineering*

Curators.....	Robert M. Vogel Edwin A. Battison Otto Mayr
---------------	---

*Medical Sciences*

Associate Curator.....	Audrey B. Davis
------------------------	-----------------

*Physical Sciences*

Associate Curator.....	Deborah J. Warner
Curator.....	Walter F. Cannon
Associate Curator.....	Jon B. Eklund

*Honorary*

Electricity and Nuclear Energy.....	Ladislaus L. Marton Gerald F. J. Tyne
Physical Sciences.....	Anthony R. Michaelis Derek J. De Solla Price

## Archives of American Art

Director.....	William E. Woolfenden
Deputy Director-Archivist.....	Garnett McCoy
Administrative Assistant.....	Richard J. Nicastro
Curator of Manuscripts.....	Arthur J. Breton
Assistant Curator of Manuscripts.....	Elsie F. Freivogel
Area Directors.....	Butler Coleman (New York) Robert Brown (Northeast) Dennis Barrie (Midwest) Paul Karlstrom (West Coast)
Field Researchers.....	F. Ivor D. Avellino (New York) Sylvia Loomis (Southwest)
Oral History.....	Paul Cummings
Trustees.....	Howard W. Lipman, President Irving F. Burton, Vice President James Humphry III, Vice President Mrs. Otto L. Spaeth, Vice President

	Girard L. Spencer, Treasurer
	Miss Milka Iconomoff, Secretary
	Henry De F. Baldwin
	Edmond duPont
	Joel Ehrenkranz
	Joseph H. Hirshhorn
	Harold O. Love
	Russell Lynes
	Robert L. McNeil, Jr.
	Mrs. Alfred Negley
	Abraham Melamed
	Mrs. E. Bliss Parkinson
	Henry Pearlman
	Mrs. Dana M. Raymond
	Mrs. William L. Richards
	E. P. Richardson
	Chapin Riley
	Edward M. M. Warburg
	S. Dillon Ripley, ex officio
	Charles Blitzer, ex officio
	Lawrence A. Fleischman, Honorary
	Mrs. Edsel B. Ford, Honorary
Advisory Committee . . . . .	James Humphry III, Chairman
	Milton W. Brown
	Lloyd Goodrich
	Eugene C. Goossen
	James J. Heslin
	John Howat
	Bernard Karpel
	Edgar Kaufmann, Jr.
	John A. Kouwenhoven
	Karl Kup
	Eric Larrabee
	Abram Lerner
	A. Hyatt Mayor
	Jules Prown
	J. T. Rankin
	Daniel J. Reed
	Charles van Ravenswaay
	Marvin S. Sadik
	Joshua C. Taylor
	William B. Walker
	Richard P. Wunder

### Freer Gallery of Art

Director . . . . .	Harold P. Stern
Assistant Director . . . . .	Thomas Lawton
Associate Curator, Chinese Art . . . . .	Hin-cheung Lovell
Associate Curator, Near Eastern Art . . . . .	Esin Atil
Head Conservator, Technical Laboratory . . . . .	W. Thomas Chase



Chemist, Technical Laboratory.....	John Winter
Research Curator, Far Eastern Ceramics.	John A. Pope
Research Consultant, Technical Laboratory.....	Rutherford J. Gettens
Research Assistant, Far Eastern Ceramics.	Josephine H. Knapp
Research Assistant, Herzfeld Archive....	Joseph M. Upton
Librarian.....	Priscilla P. Smith
Honorary Associates.....	Richard Edwards Calvin French

### National Collection of Fine Arts

Director.....	Joshua C. Taylor
Assistant Director for Operations.....	Harry Lowe
Administrative Officer.....	Harry Jordon
Registrar.....	W. Robert Johnston
Curator, Contemporary Painting and Sculpture.....	Adelyn Breeskin
Associate Curator, 18th- and 19th- Century Painting and Sculpture.....	William H. Truettner
Curator, Prints and Drawings.....	Janet A. Flint
Curator of Education.....	Peter Bermingham
Administrator, Renwick Gallery.....	Lloyd E. Herman
Coordinator of Research.....	Lois M. Fink
Coordinator, Bicentennial Inventory of American Paintings.....	Abigail Booth
Chief, Office of Exhibition and Design...	David Keeler
Chief, Office for Exhibitions Abroad....	Lois A. Bingham
Senior Conservator.....	Anton Konrad
Editor, Office of Publication.....	Carroll Clark
Librarian, NCFA/NPG.....	William B. Walker
Coordinator for Lending Program.....	Donald R. McClelland
Public Affairs Officer.....	Benjamin Ruhe
National Collection of Fine Arts Commission.....	Thomas C. Howe, <i>Chairman</i> H. Page Cross, <i>Vice Chairman</i> S. Dillon Ripley, <i>Secretary</i> Thomas S. Buechner David E. Finley Martin Friedman Lloyd Goodrich Walker Hancock Bartlett H. Hayes, Jr. August Heckscher Mrs. Jaquelin H. Hume Abram Lerner, <i>ex officio</i> Henry P. McIlhenny Ogden M. Pleissner Charles H. Sawyer

	Mrs Otto L. Spaeth
	George B. Tatum
	Otto Wittman
Honorary Members.....	Alexander Wetmore
	Leonard Carmichael
	Gilmore D. Clarke
	Paul Mellon
	Stow Wengenroth
	Andrew Wyeth

National Portrait Gallery

Director.....	Marvin S. Sadik
Assistant Director and Administrative Officer.....	Douglas E. Evelyn
Historian.....	Lillian B. Miller
Research Historian.....	Frederick S. Voss
Coordinator of Exhibitions.....	Beverly J. Cox
Curator.....	Robert G. Stewart
Associate Curator.....	Monroe Fabian
Keeper of the Catalogue.....	Wilford P. Cole
Senior Research Assistant.....	Mona Dearborn
Curator of Education.....	Dennis A. O'Toole
Associate Curator of Education.....	Lisa Strick
Chief, Exhibits Design and Production...	James J. Shelton
Assistant Chief, Exhibits Design and Production.....	Joseph M. Carrigan
Librarian (NPG-NCFA).....	William B. Walker
Senior Conservator.....	Felrath Hines
Photographer.....	Eugene L. Mantie
Registrar.....	Jon D. Freshour
Assistant Registrar.....	Suzanne C. Jenkins
Public Affairs Officer.....	Nancy F. Bush
NPG Commission.....	John Nicholas Brown, <i>Chairman</i>
	Whitfield J. Bell, Jr.
	Ralph Ellison
	David E. Finley
	Wilmarth Sheldon Lewis
	Robert L. McNeil, Jr.
	Andrew Oliver
	Jules D. Prown
	E. P. Richardson
	Robert Hilton Smith
Ex-officio.....	Chief Justice of the United States
	Secretary, Smithsonian Institution
	Director, National Gallery of Art

The Hirshhorn Museum and Sculpture Garden

Director.....	Abram Lerner
Administrative Officer.....	Joseph Sefekar

Curator, Exhibitions.....	Douglas MacAgy
Associate Curator.....	Cynthia Jaffee McCabe
Assistant Curator.....	Inez Garson
Curatorial Assistant.....	Maurene S. Donadio
Librarian.....	Anna Brooke
Registrar.....	Nancy Sage
Museum Specialist.....	Frank B. Gettings
Trustees.....	H. Harvard Arnason
	Leigh B. Block
	Theodore E. Cummings
	George Heard Hamilton
	Elisabeth Houghton
	Daniel P. Moynihan, <i>Chairman</i>
	Taft B. Schreiber
	Hal B. Wallis
Ex officio.....	Warren E. Burger
	S. Dillon Ripley
Advisors.....	Brian O'Doherty
	William C. Seitz
	Joshua C. Taylor

### Cooper-Hewitt Museum of Decorative Arts and Design

Director.....	Lisa Suter Taylor
Administrator and Curator of Collections.....	Christian Rohlfing
Assistant Curator of Decorative Arts....	Catherine Frangiamore
Curator of Drawings and Prints.....	Elaine Evans Dee
Technician for Drawings and Prints....	Xenia Cage
Assistant Curator of Textiles.....	Milton Sonday
Consultant for Textiles.....	Alice Baldwin Beer
Registrar.....	Mary F. Blackwelder
Exhibits Specialist.....	Dorothy Twining
Assistant Librarian.....	Eliane Zuesse
Building Manager.....	Manuel Perez
Museum Secretary.....	Rowena MacLeod
Museum Receptionist.....	Deirdre MacGuire

### National Armed Forces Museum Advisory Board

Director.....	John H. Magruder III <sup>19</sup>
Assistant Director.....	James S. Hutchins <sup>20</sup>
Administrative Officer.....	Miriam H. Uretz
Collections.....	John M. Elliott
Secretary.....	Barbara J. Lane
Historian.....	James S. Stokesberry <sup>21</sup>
Registrar.....	Lorene B. Mayo <sup>22</sup>

<sup>19</sup> Died 2 September 1972.

<sup>20</sup> Acting Director from 11 December 1972 to 30 April 1973; appointed Director on 1 May 1973.

<sup>21</sup> Resigned 20 April 1973.

<sup>22</sup> Transferred to National Museum of History and Technology 23 April 1973.



Advisory Board.....	The Honorable John Nicholas Brown, Chairman The Honorable Earl Warren Secretary of Army Secretary of Navy Secretary of Air Force Lieutenant General Milton G. Baker, Retired Robert C. Baker The Honorable Alexander P. Butterfield William H. Perkins, Jr.
Ex officio.....	Secretary of Defense Secretary, Smithsonian Institution

Joseph Henry Papers

Editor.....	Nathan Reingold
Assistant Editor.....	Arthur P. Molella
Staff Historian.....	James M. Hobbins
Research Assistant.....	Kathleen Waldenfels
Administrative Officer.....	Beverly Jo Lepley

Office of American Studies

Director.....	Wilcomb E. Washburn
---------------	---------------------

Office of Academic Studies

Executive Officer.....	Edward S. Davidson
Program Officer.....	Gretchen Gayle

Smithsonian Institution Archives

Archivist.....	Richard H. Lytle
Associate Archivist.....	William A. Deiss
Assistant Archivists.....	James Steed Alan L. Bain
Supervisory Technician.....	Norwood Biggs <sup>23</sup>

Office of Seminars

Director.....	Wilton S. Dillon
Assistant to Director.....	Dorothy Richardson
Secretary to Director.....	Frances Miller
Program Specialist.....	Jane Wallace

<sup>23</sup> Joined staff 1 November 1973.

## SPECIAL MUSEUM PROGRAMS

Assistant Secretary.....	Paul N. Perrot
Assistant Director.....	Frederick Schmid
Research Assistant (Conservation).....	Elena Borowski
Learning Research Specialist.....	Jean Chen
Research Assistant (Psychology).....	Pamala Elliott
Research Psychologist.....	Robert A. Lakota <sup>24</sup>
Research Psychologist (Visiting).....	Ross J. Loomis
Consultant, Experimental Psychologist...	C. G. Screven
Chief, Workshop Programs (Exhibits)...	Rolland O. Hower
Research Associate.....	Frank A. Taylor

## Smithsonian Institution Libraries

Director of Libraries.....	Russell Shank
Assistant to the Director.....	Elaine F. Sloan <sup>25</sup>
Administrative Librarian.....	Thomas L. Wilding
Administrative Officer.....	Mary C. Quinn
Assistant Director of Libraries for Bureau Services.....	Jean C. Smith
Deputy Assistant Director of Libraries for Bureau Services.....	L. Francis Jones
Branch Librarians:	
Department of Botany.....	Ruth F. Schallert
Freer Gallery of Art.....	Priscilla B. Smith
Hirshhorn Museum and Sculpture Garden.....	Anna M. Brooke
National Air and Space Museum.....	Catherine D. Scott
National Collection of Fine Arts and National Portrait Gallery.....	William B. Walker
National Museum of History and Technology.....	Frank A. Pietropaoli
National Museum of Natural History..	Jean C. Smith (acting)
National Zoological Park.....	Mary Clare Cahill
Smithsonian Astrophysical Observatory.....	Joyce M. Rey
Smithsonian Radiation Biology Laboratory.....	Mary Clare Cahill
Smithsonian Tropical Research Institute.....	Alcira Mejia
Woodrow Wilson International Center for Scholars.....	Mary Anglemeyer
Branch Library Reference Staff:	
National Collection of Fine Arts and National Portrait Gallery.....	Sara H. Hanan

<sup>24</sup> Appointed 1 February 1973.

<sup>25</sup> Appointed 15 January 1973.

National Museum of History and Technology.....	Charles G. Berger
Assistant Director of Libraries for General Services.....	Philip Leslie <sup>26</sup>
Access Services	
Chief.....	Jack F. Marquardt
Assistant Chief.....	Dan O. Clemmer
Bibliographer for the History of Science and Technology.....	Jack S. Goodwin
Technical Processing Center Chief.....	Vija L. Karklins
Acquisitions Division	
Chief.....	Mildred D. Raitt
Gift and Exchange Librarian.....	Sharon H. Sweeting
Catalog Division	
Chief.....	Mary Jane H. Linn <sup>27</sup>
Catalogers.....	Angeline D. Ashford Charles H. King Helen S. Nordberg Margaret A. Sealor Bertha S. Sohn Carol L. Wohlford <sup>28</sup>
Processing Section	
Chief.....	Mary J. Pierce

### Conservation-Analytical Laboratory

Chief.....	Robert M. Organ
Research Chemist.....	Jacqueline S. Olin
Senior Conservator.....	Eleanor McMillan

### Smithsonian Institution Traveling Exhibition Service

Chief.....	Dennis Gould
Administrative Assistant.....	Eileen Rose
Exhibits Coordinators.....	Anne R. Gossett Andrea P. Stevens Quinton H. Hoglund
Registrar.....	Kathleen Spears

### Office of Registrar

Acting Registrar.....	William P. Haynes
-----------------------	-------------------

<sup>26</sup> Appointed 29 October 1973.

<sup>27</sup> Transferred from Department of Health, Education, and Welfare 24 December 1972.

<sup>28</sup> Resigned 13 October 1972.



## Office of Exhibits Programs

Acting Director.....	James A. Mahoney
Deputy Director.....	Benjamin W. Lawless
Chief of Design.....	Richard S. Virgo
Assistant Chief of Design.....	William F. Haase
Chief of Production.....	Harry T. Hart
Assistant Chief of Production.....	Eugene F. Behlen
Exhibits Labels Editor.....	Constance Minkin
Program Management Officer.....	William M. Clark, Jr.

## PUBLIC SERVICE

Acting Assistant Secretary.....	Julian T. Euell
Deputy Assistant Secretary.....	Robert W. Mason
Administrative Assistant.....	Ruth Frazier

## Smithsonian Associates

Executive Director.....	Robert W. Mason
Director of Plans and Marketing.....	Robert H. Angle
National Program	
Director, Reception Center.....	Mary Grace Potter
Manager, Domestic Study Tours.....	Patricia N. Kilkenny
Manager, Contributing Membership...	Maxwell G. Courtney III
Assistant for Corporate Membership...	Barbara M. Benson
Resident Program	
Director.....	Janet W. Solinger
Business Manager.....	Edward Able
Program Coordinators.....	Carolyn A. Hecker
	Moya B. King
	Leslie L. Buhler
Membership Secretary.....	Judith L. Engels

## Office of Public Affairs

Director.....	Carl W. Larsen
Special Assistant to the Director.....	Jewell S. Dulaney
Chief, News Bureau.....	Mary M. Krug
Art Information Specialist.....	Benjamin P. Ruhe
Science Information Specialist.....	Thomas R. Harney
Information Officer.....	Johnnie M. Douthis
Writer-Editor.....	Lilas P. Wiltshire
Special Events Officer.....	Meredith Johnson
Assistant Special Events Officer.....	Jeanette C. Gladstone
Publications Officer.....	William O. Craig
Radio Production Specialist.....	Paul B. Johnson
Film Coordinator.....	William C. Grayson

## Office of International Activities

Acting Director.....	Kennedy B. Schmertz
Special Consultant on International Activities.....	LeRoy Makepeace <sup>29</sup>
International Activities Assistant.....	Francine C. Berkowitz <sup>30</sup>
Foreign Currency Program	
Director.....	Kennedy B. Schmertz
Assistant Director.....	Kenneth D. Whitehead <sup>31</sup> C. Elmer Skold <sup>32</sup>
Program Officer.....	Richard T. Conroy
Grants Technical Assistants.....	Betty J. Wingfield Judy E. Rodgers
Administrative Assistant.....	Jean A. C. Harrell

## Division of Performing Arts

Deputy.....	James R. Morris
Deputy Director.....	Richard P. Lusher
Director, Festival of American Folklife...	Ralph C. Rinzler
Associate Director, Festival of American Folklife.....	Gerald L. Davis
Folklore Presentation Specialist.....	Ernestine Potter
Director, Indian Awareness Program....	Clydia Nahwooksy
Assistant Director, Indian Awareness Program.....	Tom Kavanagh
Director, Jazz Program.....	Martin Williams
Planning Officer.....	Marian A. Hope
Production Manager.....	B. C. May
Operations Officer.....	Manuel Melendez
Director, Touring Performances.....	Mark Mason
Manager, Box Office.....	Harry Bagdasian
Administrative Officer.....	Anne Anders

## Anacostia Neighborhood Museum

Director.....	John R. Kinard
Assistant Director.....	Zora B. Martin
Research and Design Coordinator.....	Larry Erskine Thomas
Exhibit Specialist.....	James E. Mayo
Education-Research Specialist.....	Louise D. Hutchinson
Mobile Coordinator.....	Fletcher Smith
Assistant to the Director for Special Projects.....	Balcha Fellows

<sup>29</sup> Appointed 21 February 1973.<sup>30</sup> Appointed 11 December 1972.<sup>31</sup> Resigned 16 September 1972.<sup>32</sup> Appointed 1 October 1972.

*Smithsonian* (magazine)

Editor.....	Edward K. Thompson
Members, Board of Editors.....	Ralph Backlund
	Grayce P. Northcross
	James K. Page, Jr.
	Edwards Park
General Manager.....	Joseph J. Bonsignore
Advertising Director.....	Thomas H. Black
Circulation-Promotion Director.....	Anne Keating

## Smithsonian Institution Press

Director.....	Gordon Hubel
Managing Designer.....	Stephen Kraft
Promotion Manager.....	Maureen R. Jacoby
Business Manager.....	Frederick H. MacVicar
Series Managing Editor.....	Albert L. Ruffin, Jr.
Series Production Manager.....	Charles L. Shaffer
Editors.....	Mary Frances Bell
	Ernest E. Biebighauser
	Louise J. Heskett
	Joan B. Horn
	Mary M. Ingraham
	John S. Lea
	Nancy L. Powars
Writer-Editor.....	Hope G. Pantell
Designers.....	Crimilda Pontes
	Elizabeth Sur

## Reading Is Fundamental, Inc.

Chairman of Board of Directors.....	Mrs. Robert S. McNamara
Managing Director.....	Eleanor Smollar
Program Director.....	Barbara B. Atkinson

## Office of Elementary and Secondary Education

Acting Director.....	John W. Bingham
Staff Associates.....	Teresa E. Covacevich (Art History)
	David W. Estabrook (History and Technology)
	Robert S. Harding (History)
	Laura L. McKie (Anthropology)
Coordinator, Volunteer Programs.....	Joan C. Madden



ADMINISTRATIVE MANAGEMENT

Under Secretary..... Robert A. Brooks

Support Activities

Director ..... Richard L. Ault  
Director, Buildings Management  
    Department..... Andrew F. Michaels  
Contracting Officer, Contracts Office.. Elbridge O. Hurlbut  
Director, Information Systems Division Stanley A. Kovy  
Director, Management Analysis Office. Ann S. Campbell  
Director, Office of Equal Opportunity. Archie D. Grimmett  
Director, Office of Personnel  
    Administration..... Vincent J. Doyle  
Director, Office of Protection Service . Robert B. Burke, Jr.  
Director, Photographic Services  
    Division..... Arthur L. Gaush  
Chief, Supply Division..... Fred G. Barwick  
Chief, Travel Services Office..... Betty V. Strickler

International Exchange Service

Director..... Jeremiah A. Collins

NATIONAL GALLERY OF ART

Board of Trustees..... The Chief Justice of the United States, Warren E. Burger, Chairman  
The Secretary of State, William P. Rogers  
The Secretary of the Treasury, George P. Shultz  
The Secretary of the Smithsonian Institution, S. Dillon Ripley  
    *ex officio*  
General Trustees..... Paul Mellon  
Dr. Franklin D. Murphy  
Lessing J. Rosenwald  
Stoddard M. Stevens  
John Hay Whitney  
President..... Paul Mellon  
Vice President..... John Hay Whitney  
Director..... J. Carter Brown  
Assistant to the Director, Music..... Richard Bales  
Assistant to the Director, National Programs..... W. Howard Adams

Assistant to the Director, Public Information.....	Katherine Warwick
Construction Manager.....	Robert C. Engle
Planning Consultant.....	David W. Scott
Secretary and General Counsel.....	E. James Adams
Assistant Secretary and General Counsel.....	Robert Amory, Jr.
Assistant Director.....	Charles P. Parkhurst
Curator of American Painting.....	William P. Campbell
Curator of Painting.....	H. Lester Cooke
Curator of Graphic Arts.....	Christopher J. White
Curator of Drawings.....	Konrad Oberhuber
Curator of Decorative Arts.....	Grose Evans
Curator of Sculpture.....	C. Douglas Lewis, Jr.
Chief, Education and Public Programs...	Margaret I. Bouton
Chief Librarian.....	J. M. Edelstein
Curator of Photographic Archives.....	Alessandro Contini-Bonacossi
Editor.....	Theodore S. Amussen
Chief of Exhibitions.....	Jack C. Spinx
Chief, Photographic Laboratory.....	Henry B. Beville
Chief Conservationist.....	Victor Covey
Treasurer.....	Lloyd D. Hayes
Assistant Treasurer.....	James W. Woodard
Administrator.....	Joseph G. English
Acting Deputy Administrator.....	Charles B. Walstrom
Assistant Administrator.....	George W. Riggs
Assistant to the Administrator (Scientific and Technical).....	Sterling P. Eagleton
Personnel Officer.....	Jeremiah J. Barrett

## JOHN F. KENNEDY CENTER FOR THE PERFORMING ARTS

Honorary Chairmen.....	Mrs. Richard M. Nixon
	Mrs. Lyndon B. Johnson
	Mrs. Aristotle Onassis
	Mrs. Dwight D. Eisenhower
Chairman.....	Roger L. Stevens
Vice Chairmen.....	Harry C. McPherson, Jr.
	Charles H. Percy
	Henry Strong
General Counsel.....	Ralph E. Becker
Secretary.....	Frank N. Ikard
Treasurer.....	W. Jarvis Moody
Music Director.....	Julius Rudel
Executive Director of Performing Arts...	Martin Feinstein
General Manager of Theaters.....	Alexander Morr
Comptroller.....	Aaron Spaulding
Director of Education.....	Forbes W. Rogers
Director of Publicity and Promotion.....	Wayne Shilkret

Assistant Treasurers..... Rita M. Driscoll  
L. Parker Harrell, Jr.  
James F. Rogers  
Henry Strong  
Peter M. Van Dine  
John R. Whitmore

WOODROW WILSON INTERNATIONAL  
CENTER FOR SCHOLARS

Acting Director..... Albert Meisel



